Electrical West

With which is consolidated the Journal of Electricity

A McGraw-Hill Publication | JULY 1, 1928 | Twenty-five Cents Per Copy

Tapping a Tremendous Market
FULLY 75% of wired homes have inadequate wiring. Re-wiring, therefore, holds almost unlimited possibilities for the advancement of the entire industry.
Re-wiring means more outlets—more appliances—increased connected load. Everybody gains—Contractor, Dealer, Power Company.
To increase the number of outlets in both old and new homes is one of the main objectives of our great sales and advertising program. This includes:
1 Striking, large-space advertisements in leading Pacific Coast newspapers, reaching 5,000,000 readers.
2 Color advertising by General Electric—pages and double pages in national magazines—22 million impressions monthly!
3 A generous merchandising plan that enables Contractors and Dealers to "cash in" quickly and easily.
Ask for full particulars
PACIFIC STATES
ELECTRIC COMPANY
Merchandise Distributor
GENERAL ELECTRIC
4528
WIRING SYSTEM
for lifetime service

These MAJESTIC Advertisements are NOW appearing in Western Newspapers

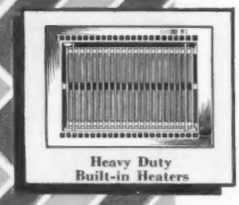
Combination Hotcake and Waffle Iron

Convenience Outlet Portable Heaters

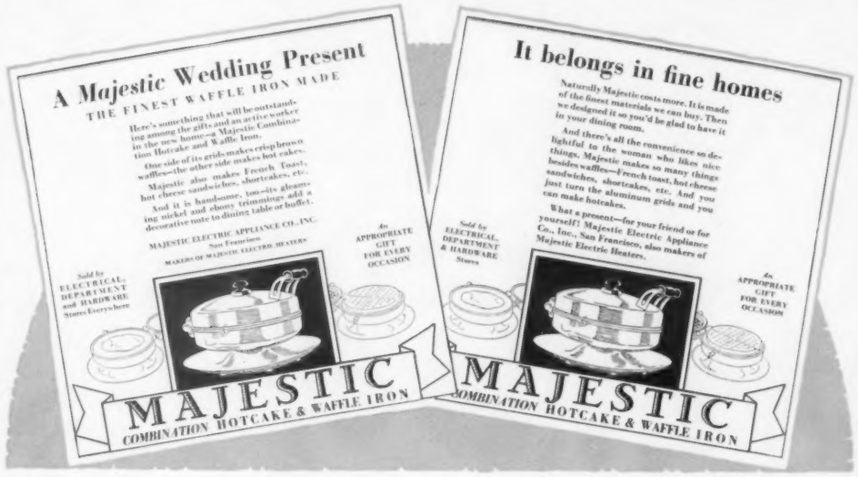
Heavy Duty Portable Heaters

Bracket-type Bathroom Heaters

Built-in Bathroom Heaters


Heavy Duty Built-in Heaters

Reflector Heaters


A Majestic Wedding Present
THE FINEST WAFFLE IRON MADE
MAJESTIC ELECTRIC APPLIANCE CO., INC.
San Francisco
MAKERS OF MAJESTIC ELECTRIC HEATERS
An APPROPRIATE GIFT FOR EVERY OCCASION
Sold by ELECTRICAL DEPARTMENT and HARDWARE Stores Everywhere
MAJESTIC
COMBINATION HOTCAKE & WAFFLE IRON
It belongs in fine homes
Naturally Majestic costs more. It is made of the finest materials we can buy. Then we designed it so you'd be glad to have it in your dining room.
And there's all the convenience so delightful to the woman who likes nice things. Majestic makes so many things besides waffles—French toast, hot cheese sandwiches, shortcakes, etc. And you just turn the aluminum grids and you can make hotcakes.
What a present—for your friend or for yourself! Majestic Electric Appliance Co., Inc., San Francisco, also makers of Majestic Electric Heaters.
Sold by ELECTRICAL DEPARTMENT & HARDWARE Stores
An APPROPRIATE GIFT FOR EVERY OCCASION
MAJESTIC
COMBINATION HOTCAKE & WAFFLE IRON

WE have made radical changes in our advertising plans for this year. We are going to advertise the Majestic Combination Hotcake and Waffle Iron *continuously* in the leading newspapers of the Pacific Coast and in the Christian Science Monitor.

Majestic Advertising is covering this great Western market like a blanket—and *you* are going to reap the harvest.

When you stop to think that only a very small percentage of the 2,352,970* wired homes here in the western states have waffle irons, you can see the kind of a market you have to shoot at—and this figure does not include hotels and apartment houses.

The purpose of this campaign is to sell Majestic waffle irons to this great market, and every sale is going to be made through *you*.

A striking indication of the steadily increasing demand for waffle irons is demonstrated by the fact that 180,000 were sold in 1926 and 300,000 in 1927.*

The Majestic Combination Hotcake and Waffle Iron has stood the test of time. It has earned and constantly maintained a national reputation as the best waffle iron that money can buy and the only one that makes both hotcakes and waffles. Majestic enjoys a definite, tangible prestige of general good will—an asset that makes it easy for you to sell Majestics.

* *Electrical Merchandising figures.*

Due to a typographical error in our June advertisement the price of the Majestic No. 12B heater was quoted at $25.00. The correct price is $27.50.

MAJESTIC

Majestic Electric Appliance Company, Inc.

Kansas City San Francisco Philadelphia

Electrical West entered as second class matter at the post office at San Francisco, under the Act of Congress, March 3, 1879. Published at 883 Mission Street, San Francisco, California, thirteen times a year as follows: January 1, February 1, March 1, April 1, May 1, May 15, June 1, July 1, August 1, September 1, October 1, November 1 and December 1.

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Electrical West

With which are consolidated the "Electrical Journal," the "Journal of Electricity, Power & Gas," and the "Journal of Electricity"

C. T. HUTCHINSON, *Editorial Director*
W. A. CYR, *Associate Editor*
G. R. HENNINGER, *Associate Editor*

A McGraw-Hill Publication
Established 1887

G. C. TENNEY, *Managing Editor*
E. J. KNOWLTON, *News Editor*
B. H. SNOW, *Northwest Editor*

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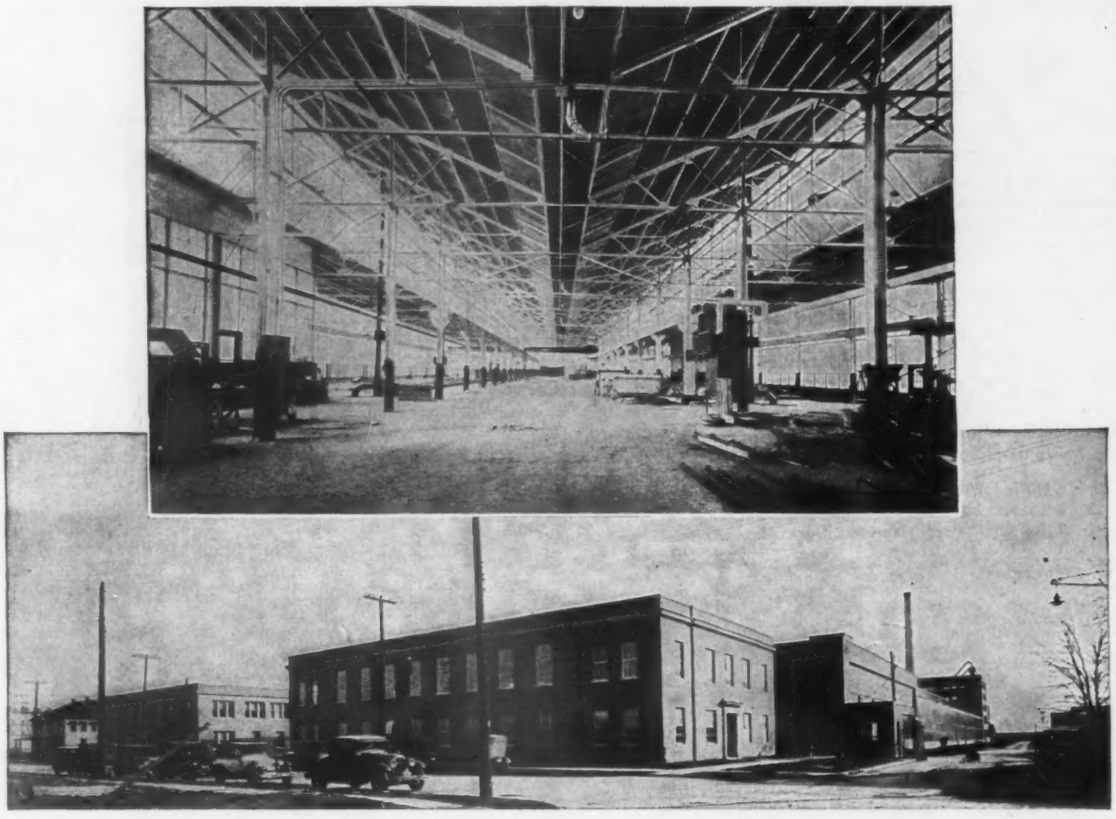

New "Straight Line" Plant

NATIONAL CARBON COMPANY, Inc., Fostoria, Ohio

This new industrial plant of the National Carbon Company, Inc., at Fostoria, Ohio, was designed and built complete by Stone & Webster, Inc. The arrangements of the following buildings insure a straight line flow from raw materials to finished products:

Calcine Milling Building
Milling and Mixing Building
Forcing Building
Furnace Building
Finishing Building

There is also a Sagger Building, Boiler Plant, Pump House, Machine Shop and Storage Building, Office Building, Employees' Service Building with the necessary service and maintenance facilities.

OPERATE FINANCE BUILD

STONE & WEBSTER

INCORPORATED

BOSTON, 49 Federal Street
NEW YORK, 120 Broadway
CHICAGO, First National Bank Bldg.
PITTSBURGH, Union Trust Bldg.
SAN FRANCISCO, Holbrook Bldg.
PHILADELPHIA, Real Estate Trust Bldg.

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JUL 12 1928

Electrical West

With which is consolidated the Journal of Electricity

C. T. HUTCHINSON, *Editorial Director* — A McGRAW-HILL PUBLICATION — G. C. TENNEY, *Managing Editor*

Volume 61 | San Francisco, July 1, 1928 | Number 1

Two Noteworthy Conventions

NOW THAT the two crowning events of the year have gone into history, it is fitting to consider the conventions of the Pacific Coast Electrical Association and the Northwest Electric Light and Power Association in retrospect.

GEOGRAPHICALLY, the first covers the States of California, Arizona, New Mexico and the Hawaiian Territory. The second includes Oregon, Washington, Idaho, Utah and Montana, so that combined the entire Pacific Coast section and the territory tributary thereto are represented.

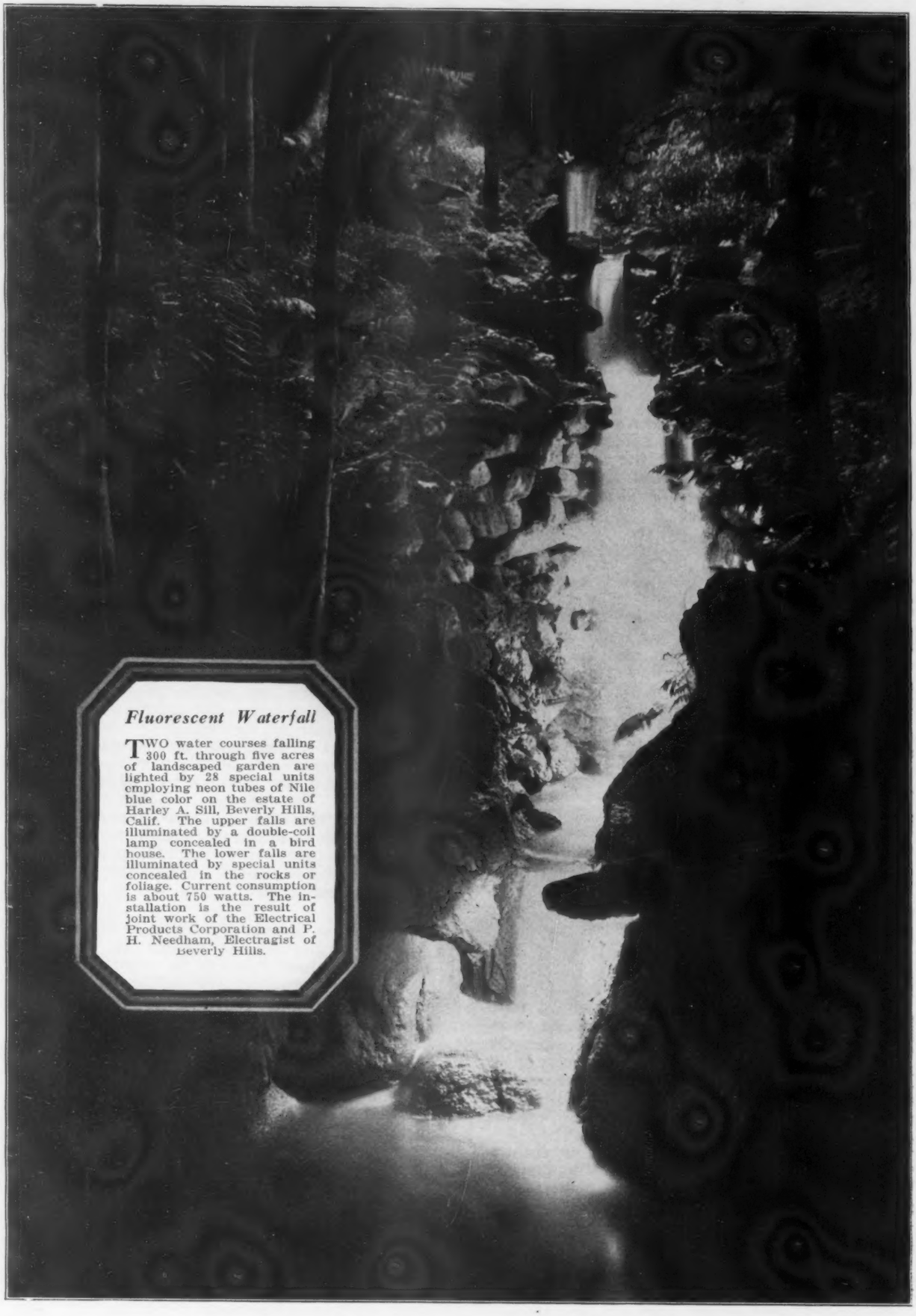
FROM the Continental Divide, from the Rockies westward, the eyes of the people turn toward the Pacific, while from the other side of the great natural barrier eyes turn toward the Atlantic. It is not unnatural under these circumstances that the culture, viewpoint, and trends in the development of industry should have developed an individuality that is "different" from that of the Middle West and East.

THIS individuality in thought and action was strikingly evident in the two conventions just past. In the first place the conventions were unconventional. Time-honored precedent and stereotyped procedure were thrown into the discard in a manner characteristically Western. This was especially true of the Pasadena convention where there was no address of welcome by the mayor, where a "speechless" banquet on the last evening delighted the participants, where the method of presentation utilized in the many section programs brought forth an enthusiastic chorus of "Oh's" and "Ah's" as surprise after surprise succeeded one another with all the vim and punch of the skilled showman.

AT PORTLAND, afternoon sessions were discarded. The mornings were devoted to formal business; the afternoons were given over to informal conferences and an entertainment program replete with novelties that were thoroughly enjoyable.

A STATISTICIAN with a Scotch complex amused himself by calculating the cost of conventions in dollars. Aided by a fertile imagination he compiled a rather appalling total, determined how much milk the sum represented would buy for the poor in the slums of our great cities, and altogether had a bully time with his figures. Like many of our very best statisticians, he disregarded utterly the other side of the picture. He omitted what it would cost not to have the conventions. He did not consider what might be the fate of an industry without inspiration, without ideals, without the urge to better service that nothing short of the great annual "getting together" through the convention idea can impart.

NO MAN or woman privileged to attend either of the two conventions just past could possibly have failed to be inspired by the great opportunities for better service that were presented so graphically. And it is equally true that the greatest beneficiary is the consuming public itself, which has come to take for granted the little push-button. There is no real appreciation of what it symbolizes, no thought of the great army of men and women, welded into a nearly perfectly functioning organization that makes the modern miracle of miracles, electricity, the industrial emancipator of human slavery.



Fluorescent Waterfall

TWO water courses falling 300 ft. through five acres of landscaped garden are lighted by 28 special units employing neon tubes of Nile blue color on the estate of Harley A. Sill, Beverly Hills, Calif. The upper falls are illuminated by a double-coil lamp concealed in a bird house. The lower falls are illuminated by special units concealed in the rocks or foliage. Current consumption is about 750 watts. The installation is the result of joint work of the Electrical Products Corporation and P. H. Needham, Electragist of Beverly Hills.

Load Building Dramatized at the 1928 P.C.E.A. Convention

LOAD BUILDING, exemplified, explained, dramatized, animated and expanded! Such was the convention of the Pacific Coast Electrical Association at the Huntington Hotel, Pasadena, June 12-15, 1928, attended by the largest number in convention history, seven hundred men and women.

But attendance was not the feature of this more than noteworthy convention. From the opening address of President W. L. Frost to the closing remarks of President-elect P. M. Downing the convention was one of surprise and originality. Never has so much information, inspiration and technology been so uniquely presented or so eagerly received in a previous convention.

P. M. DOWNING
vice-president in charge of operation and construction, Pacific Gas and Electric Company, president-elect of the Pacific Coast Electrical Association.

The convention was distinguished by two predominating ideas. First there was the all embracing theme of load-building, the discussion of which brought out not only the importance of a more intensive selling activity to the industry itself, but also the debt the industry owes its consumers in making available to them all of the benefits, comforts and conveniences of electricity.

Then there was the noticeable spine-stiffening attitude of the light and power companies toward the unreasonable and abusive attacks that have resulted from the hearings of the Federal Trade Commission investigation.

To attempt to pick out the most oustanding feature of the convention, however, would be difficult. It would be better to say that there were any number of unusual or particularly valuable parts of the convention, none of which could be considered of more far-reaching importance than the others.

In spite of this fact several features stand forth prominently. The contest between each section of the association to determine what that particular section could do to assist load building was such a feature. Every part of the contest, however, could well claim its own distinction. This was won by the Advertising-Publicity Section with a motion picture film that showed graphically and very humanly that without advertising load-building cannot progress.

The Commercial Section in this contest offered the slogan, "Electrify the Kitchen," in a playlet that pointed out the load-building possibilities in the 1,100,000 homes in the state. The Engineering Section presented a speaker who told of the work of the research laboratories and of the work now being done by engineers to develop new markets for electricity. The Accounting Section offered the assistance of the accounting departments with their facilities for gathering statistical information on every phase of company business. The Transportation Section pointed out that without efficient transportation the salesmen could not function.

In the Public Relations Section the growing importance of women's committee work stands forth pre-eminently. The experience of companies whose women are alive to their responsibilities as representatives of the company should stand as sufficient evidence of the need for such work as to leave no company unconvinced of its prime value.

Then there was the three-minute speaking contest on the subject, "Electricity is Cheap—Use More of It." Six speakers representing six of the principal central stations of the state had earned the right to be present and gave the convention a fresh viewpoint on this slogan. Each three-minute speech was filled with sales arguments that showed that some of the employees of the companies have a better grasp of the sales possibilities of the industry than many of their superiors. On the popular side there was the demonstration of the "Televox," or mechanical man, to arouse the imagination to consideration of the possibilities of remote control of electricity and the wizardry of the selective relay. But the mechanical man received no more attention than the playlet, "More Kilowatts Per Cow," which told subtly and humorously the story of farm electrification.

The program of continuity in association activities adopted at the convention last year was again carried through. President-elect Downing appointed his entire staff for the next adminstration year.

General Convention Chairman R. E. Smith, to whom President Frost attributed credit for the originality and successful engineering of the convention, in preparing the program laid down the rule that each subject presented must be animated or dramatized.

Consequently the reporting of such a convention presents a difficult task unless each item of the program is taken by itself. In the pages that follow will be found the story of the convention, a tabloid condensation of the important features of each speaker's talk, each dramatic presentation, discussed in a separate item.

"Load Building Dramatized at 1928 P.C.E.A. Convention"

President Frost Reviews Association Activities in Annual Report to Convention

SOUNDING the keynote of the convention by pointing out the sale of power and not its production is the problem of the industry today, W. L. Frost, president of the association, reviewed the progress of the organization during the past year in his annual address to the convention at the first general session Tuesday morning. Commenting upon the work of the association President Frost said:

"Practical evidence of a successful year may be found in the statement that during the year just closing 800 men and women on the Pacific Coast have taken part in committee work and conclaves. The effects of this work are obvious: the employees themselves have benefited through contact with others in similar lines of work; the member companies have benefited through the increased efficiency of these people as well as through the application of their ideas thus brought forth; finally the general public, more than any other element, is benefiting through a more efficient and more reliable electric service."

President Frost saw little for the industry to fear from the Federal Trade Commission investigation. Regarding the political attacks on the light and power companies he said:

"For some time past the electrical industry in America has been subjected to a vicious attack instigated and directed by groups of political and radical interests engaged in pernicious propaganda for the advancement of the socialistic principles embodied in the program of the Public Ownership League of America. It would appear that no action by any power company, no matter how sound, how desirable from the viewpoint of the public welfare nor how well aligned with the economical and industrial advancement of our country and its people, has been permitted to escape misconstruction and misrepresentation by these proponents of government ownership.

"It is very gratifying to be able to report that the attitude of a great majority of the press toward our industry in connection with the investigation before the Federal Trade Commission has been fair, accurate and constructive. It is regrettable, however, that in some cases newspapers favoring government ownership have so cunningly devised their headlines as totally to misrepresent the testimony taken at the hearings before the commission. We are anxious that the true facts be given to the public and know that the National Electric Light Association officials have offered the commission every faculty at their command for ascertaining the truth."

The action of the industry in supplying schools and colleges with accurate and timely information regarding its development and progress was defended by President Frost. He pointed out that at no time has the industry been secretive in furnishing such data and that in every instance the source has been acknowledged.

Master minds of the convention—President W. L. Frost and his chief of staff, Dick Smith, general convention chairman.

P. M. Downing Is President for Coming Year

P. M. Downing, vice-president in charge of operation and construction of the Pacific Gas and Electric Company, San Francisco, was elected president of the association for the coming year at the first general session. E. B. Criddle, vice-president and general agent, The Southern Sierras Power Company, Riverside, was elected first vice-president and A. M. Frost, commercial manager, San Joaquin Light & Power Corporation, Fresno, was elected second vice-president. Samuel H. Taylor and N. R. Sutherland, Pacific Gas and Electric Company, were re-elected secretary and treasurer respectively.

The new executive committee of the association includes the following: A. B. Day, president, Los Angeles Gas and Electric Corporation; R. E. Fisher, vice-president in charge of public relations and sales, Pacific Gas and Electric Company; R. M. Alvord, General Electric Company, San Francisco; H. L. Harper, Graybar Electric Company, Los Angeles; C. E. Heise, Westinghouse Electric & Manufacturing Company, San Francisco; A. E. Holloway, San Diego Consolidated Gas & Electric Company; C. T. Hutchinson, McGraw-Hill Company of California, San Francisco; A. F. Morairty, Central Arizona Light & Power Company, Phoenix; R. E. Sharon, Great Western Power Company, San Francisco; E. N. Pike, Wagner Electric Company, San Francisco, and C. E. Listenwalter, Listenwalter & Gough, Los Angeles.

The probable theme of the work of the various sections of the association during the coming year was suggested by Mr. Downing following his election to the presidency, when he pointed out that the problem of reducing the cost of power to the ultimate consumer was fully as important as that of building increased load. He stated that this subject should furnish ample opportunity for study for all the various sections.

Secretary's Report Contains Many Suggestions

Several constructive suggestions regarding the operation of the association were offered by Samuel H. Taylor, secretary of the organization, in his annual report. Mr. Taylor urged executives of the association to exert great effort to secure a larger appropriation from the N.E.L.A. in order that more committee work might be carried on and that the benefits of the association might be extended to outlying districts of the geographic division.

The suggestion was offered that the executive committee of the association hold one meeting each year concurrent with a meeting of each of the sections in order for the officers to become better acquainted with the work of the various committees. Mr. Taylor also urged that committee chairmen for the coming year send in lists of their appointments at the earliest possible date so that these lists may be checked by the secretary's office for eligibility. As chairman of the membership committee Mr. Taylor reported that the association membership now numbers between 2,900 and 3,000.

College President Urges That Publicity Carry On

"Big Business," including the light and power industry, is not to be censured for its efforts to tell its story in the schools and colleges of America, in the opinion of Dr. Walter Dexter, president of Whittier College, who delivered an inspirational address at the first general session of the convention. Dr. Dexter declared that the future success of business as well as civilization itself is dependent upon the success of the educational system of the country in turning out properly trained men and women.

What the public expects from the electrical industry is more invention and more cheap power, Dr. Dexter declared. He urged the industry to leave no stone unturned in its publicity efforts, citing the experience of the inventors of the telephone 50 years ago who were not only ridiculed but were threatened with jail. He stated that the public is skeptical of the new and novel until it learns the facts and declared that many of the contributions of the electrical industry are unappreciated for this very reason. Much of the criticism that has been directed at the industry in recent months, he believes, has been due to the fact that it is human nature to find fault, particularly with the providers of such an essential service as electricity.

"Load Building Dramatized at 1928 P.C.E.A. Convention"

"Electricity Is Cheap" Proved by Speakers in Three-Minute Contest

FOR THE second successive year the Advertising-Publicity Section sponsored a three-minute speaking contest at the luncheon on the opening day of the convention. Two young women and four young men representing six of the power companies in California spoke on the subject, "Electricity is Cheap, Use More of It." The first prize, consisting of $100 worth of stock in any utility company the winner chose, was won by W. M. Fisher, of the Los Angeles Gas and Electric Corporation. The second prize, consisting of a camera, was won by Ray A. Edwards, of the San Diego Consolidated Gas & Electric Company, while third place, for which there was no prize, went to George E. Zelhart, of the San Joaquin Light & Power Corporation.

Others who participated in the contest were: Miss Winifred Boole, representing the Southern California Edison Company; Irving T. Gubin, representing the Pacific Gas and Electric Company, and Miss Evelyn M. Searl, representing The Southern Sierras Power Company. Walter J. Walsh, who was to have represented the Great Western Power Company, was unable to attend the convention. All of the participants in the contest were selected as the result of preliminary contests held in their individual companies. More than 1,000 young men and women in the seven important power companies of the state took part in these preliminary trials.

This year's contest won high praise from the officials of the organization and from Dr. Walter Dexter, president of Whittier College, who attended the luncheon. Not only was the subject matter of vital importance to the industry but it was presented in a highly creditable manner.

Space being limited, publication of these speeches will be given one each month in the "Better Merchandising" section of Electrical West in succeeding issues until all six have been printed, so many good sales arguments are contained therein.

D. L. Scott, manager of Public Relations, Los Angeles Gas and Electric Corporation, presided over the luncheon meeting and introduced the various speakers.

Electrical Testing and Hydraulic Governors Feature Engineering Session

EASTERN engineers presented the two major features of the one and only Engineering Section session at the Pasadena convention. F. M. Farmer, chief engineer of the Electrical Testing Laboratories, New York, gave an illustrated "word-trip" through the E.T.L. plant in New York, and Irl C. Martin, engineer of the Woodward Governor Company of Rockford, Ill., described the whys and wherefores of governors and governing equipment.

With the new president, Paul Downing, stands R. S. Daniels of Copco, who stretches hands across the northern boundary with Oregon's best wishes.

Originally organized, according to Mr. Farmer, by the Association of Edison Illuminating Companies for the purpose of testing and inspecting the incandescent lamps purchased by those companies, the Electrical Testing Laboratories' scope has increased until it now encompasses practically all important testing and inspection required by the electrical industry. It is truly a co-operative organization intended to supplement the company laboratories necessarily maintained by the larger utility companies. Its most important work consists in the handling of tests and investigations involving long spans of time such as life tests on lamps and certain other equipment, and in carrying to more exhaustive conclusions work of general interest that may have originated in some of the member laboratories.

Through its work the laboratory makes available to central station companies information of general interest, whch ultimately must have been determined anyway, if not through the enlarged and strategic facilities of the laboratory, then through the more restricted and consequently more costly efforts of the individual company laboratory.

Inspection and testing of all commodities purchased by the companies is another source of saving to the participating companies, not only a saving in dollars and cents in the direct cost of doing the mechanical work involved, but also the saving and benefits accruing through the pooling of such work in one agency.

Electrical investigations include the testing of instruments and related equipment, insulation and conductivity tests, magnetic tests, battery tests and operation tests on motors, switches, heater wire and units, and many others. Life tests on many thousands of lamps are run in the laboratories in conjunction with factory and field inspection and testing service; lamp research, statistical studies and reports and photometric testing also are

From national headquarters N.E.L.A.—President P. S. Arkwright and Secretary A. Jackson Marshall.

a part of the regular activities. Mechanical testing, high-voltage testing of cables and other equipment, and chemical investigations all have ther place too.

In spite of the fact that hydraulic governors are designed and built to control water wheels, it is the water-wheel design and the unit and system operating requirements that control governor developments according to an interpretation of the remarks made by Irl C. Martin in his discussion of hydraulic governors. The speaker followed the development history of this class of governors, illustrating the physical and operating differences that make complete governor functioning now a matter of a second or so instead of 120 seconds as in the early machines.

Refinements now make possible the automatic chain operation and selective operating sequence control of a group of plants, subject, for instance, to a predetermined permissible system frequency variation. Motor-operated ball heads received the emphatic support of the speaker who pointed out that in several years of operation this type of ball head had developed no serious shortcomings and that its operating record had been such that the popular demand for it is increasing markedly. The latest development mentioned was that of vertical motor-operated ball head of marked simplicity. In this unit the fly-ball driving shaft and the motor shaft are common and the whole rests upon an oil-immersed thrust bearing. The rotor may be removed by the simple expedient of lifting and the motor stator also is as easily handled. It was stated that these features were items of marked importance in reducing outage time incident to repairs.

"Beyond the Microscope" was the title of an intensely interesting film presented depicting pictorially the relations existing between ions, atoms and molecules incident to the chemical dissociation of water.

"Load Building Dramatized at 1928 P.C.E.A. Convention"

Refrigeration Committee Presents Two Playlets

Two phases of electric refrigeration were presented in playlets done in pantomine sponsored by the electric refrigeration committee at the meeting of the Commercial Section, Tuesday afternoon.

The first playlet showed a kitchen with the old-time ice box. The wife discovers that there is no ice in the ice box and sends the husband out for some. In the mean time the iceman calls and fills the box after making a mess of the kitchen. The husband returns, finds the ice box full and throws the block of ice he has brought out the back door. In the meantime the wife has thrown a bottle of sour milk and spoiled vegetables out of the box.

The second scene of this playlet opened with the husband and wife returning from a trip. The wife tears three pages from a calendar to indicate they had been gone three days and then goes to the electric refrigerator and takes out sufficient food for supper.

The second of the playlets showed a kitchen of a modern home with an electric refrigerator. It is apparent that the refrigerator is out of order. The housewife calls for a service man. This service man comes in the front door, is dressed in dirty overalls, is smoking a cigarette, and does not remove his hat. In servicing the refrigerator he empties all of his tools on the floor and in making the necessary adjustments gets the refrigerator covered with grease which he does not wipe off. After he leaves, the housewife discovers that the box is not operating. She calls for another service man. The second service man enters the kitchen through the back door, removes his hat, spreads a cloth in front of the refrigerator on which he places his tool box and then proceeds to adjust the machine in a quiet and efficient manner.

The two platlets were staged under the direction of Henry C. Rice, appliance sales manager, Southern California Edison Company, who was chairman of the electric refrigeration committee.

Prizes Awarded to Winners in Essay Contest

Major prize winners in the essay contest conducted by the Customer Relations Committee were presented and prizes awarded by Ward C. Shafer, chairman of the committee, at a meeting of the Commercial Section, Tuesday afternoon. The first prize of $150 was won by DeWitt C. Scott, San Joaquin Light and Power Corporation. A second prize consisting of $100 was won by Bolney C. Brown, Southern California Edison Company, while third and fourth prizes consisting of $75 and $50 respectively were won by Wm. M. Fisher, Los Angeles Gas and Electric Corporation, and Clarence Mathews, Southern California Edison Company.

The textbook used in this year's contest consisted of the report prepared by the Customer Relations Committee four years ago. The text was reprinted and the title changed to "Employee and Consumer." Each contestant was required to read the text, select the three outstanding features, discuss them, and give a personal experience in public contact as an illustration. A total of 967 papers was submitted to the committee of which 755 were from the Southern California Edison Company. Mr. Shafer reported that during the last four years approximately 80,000 copies of the text had been placed in the hands of member company employees. He stated that while much tangible good has resulted, as indicated by the number of entrants in the three essay contests that have been conducted, the greatest benefits have been intangible. He said, "Get these booklets out and put them to work. They make an admirable guide for new employees and a tactful but forceful reminder for old employees." The winning essay submitted by Mr. Scott of the San Joaquin Light & Power Corporation will be published in a later issue.

In addition to the four major prizes mentioned above there were awarded five prizes of $25 each, ten prizes of $15 each and thirty prizes of $5 each.

Range Wiring Standards Are Discussed

Progress made since the adoption of the range wiring standards proposed by the Commercial Section was described by George C. Tenney, managing editor, Electrical West, chairman of the range wiring sub-committee.

Commerce and advertising—W. C. McWhinney, chairman Commercial Section, and J. Charles Jordan, chairman Advertising-Publicity Section.

In describing the standards, Mr. Tenney used a demonstration board wired in accordance with the new specifications by C. A. Rowley of the Rowley Electric Company, Pasadena. He pointed out that a saving in cost of range wiring has been effected by the elimination of one switch at the range, the reduction in size of the conduit required, and principally through a saving in labor due to both of the above reasons. Mr. Tenney said in part:

"Since the adoption of the standards there has been too great a tendency on the part of the commercial men to sit back and wait for the cost of range wiring to come down. Actually, there are several steps which must be taken before any such thing will happen. At the present time the job is only half finished. Despite the fact that the standards have been definitely passed upon by the California Association of Electrical Inspectors, they have not been accepted except in a very few communities. In the new electrical ordinance recently adopted in Sacramento the new standards are written in. They are also acceptable in Los Angeles, in Pasadena and in several other southern California cities.

"However, as yet they have only been accepted by one or two power companies. In the opinion of the committee the following steps will be necessary: First, the standards must be approved by all of the power companies in the state; secondly, the local power company managers and the Electragists in any given community must sell the standards to the municipal inspection department.

"Some opposition to the standards has developed in certain cities where the present requirements are higher than those proposed in the new specifications. Also some opposition has developed in other cities, particularly among the power company men, where standards are lower than those proposed. However, allowances must be made in both of these instances. The industry cannot expect wiring costs to come down without concerted co-operative action."

Neon Lighting Revives Work of Sign Committee

Recent trends of neon sign lighting were described and illustrated by G. H. P. Dellman, San Diego Consolidated Gas and Electric Company, chairman of the lighting bureau, at the meeting of the Commercial Section Tuesday. Mr. Dellman also presented the hitherto unpublished report of the sign and floodlighting committee. Reporting for this committee, Mr. Dellman said:

"Luminous tube signs are rapidly beginning to displace existing incandescent signs. Even in the smaller towns installations are being made in increasing number. It may be noted that most of the unsolicited requests for sign advice which came into the East Bay Division of the Pacific Gas and Electric Company during the first five months of 1928 showed a primary interest in luminous signs.

"In view of the fact that the luminous tube averages about 7 watts of energy consumption per foot of tube, it will be appreciated that any

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conclusions drawn principally from anti-luminous days have lost most of their value. It cannot be doubted that the luminous tube sign is here to stay. It is the belief of this committee that the changes brought about by luminous tube lighting justifies the continuance of a special committee and special study. An estimate is needed of the present and probable future effect of luminous tube sign development on central station revenue. The fact of lower current consumption is offset to an unknown extent by such factors as the increase in average burning hours. Many of the new signs burn 24 hr. a day. It is also true that many new sign users have been developed who had never been previously persuaded of the desirability of an incandescent sign."

Mr. Dellman described an installation where a prospect called on the power company for information regarding a luminous tube sign. As the result of this contact the prospect was sold a combination luminous tube and incandescent sign and a complete job of floodlighting on the front of his building. The resulting load was 4½ kw. In the demonstration of neon signs that followed Mr. Dellman's talk, the Commercial Section was privileged to have the first public showing of the "Claudescope," the first neon sign to involve both motion and color changes. Mr. Dellman also introduced Norman I. Prosser, of Pasadena, the inventor of this new sign.

Window Lighting Dependent Upon Wiring

Of the four test cases undertaken by the commercial lighting committee to determine the value of better illumination to the merchant and to the power company, two have been completed and two are still under way, declared Victor W. Hartley, chairman, at the Commercial Section meeting, Tuesday afternoon.

The Long Beach and San Francisco test cases were then described. Full details of these tests will appear in a later issue.

The outstanding discovery in all of the test cities was that a much better selling job has been done than has been realized, and that the reason for the continuing low standards of illumination was not lack of appreciation by the merchants of their needs, but the fact that the buildings are not wired to accommodate better installations. The committee, therefore, recommended the establishment of a set of commercial-building wiring standards and their widespread dissemination among architects and builders in order that this condition may be overcome. New structures, then, would not continue to present the same obstacle to the merchant who wants better light and expects the electrical industry to provide it for him.

Public Relations Aspect of Home Lighting Discussed

In discussing the public relations aspects of better home lighting, Clark Baker, National Lamp Works, chairman of the educational lighting committee, presented through the Commercial Section at its meeting Tuesday a resume of the lighting talk that has been given before 65 women's clubs and parent-teacher associations during the past year. Mr. Baker reported that over 5,000 women, including housewives and teachers, had heard the lecture.

Merchandisers both—"Kelly" Courtright, Valley Electrical Supply, Fresno, and H. C. Rice, Southern California Edison.

The picture deals with the principles of vision, with gloom and glare and their effects on eyesight, and concludes with a discussion of proper lighting both for the schoolroom and for the home. Mr. Baker reported that school authorities had welcomed the presentation of the lighting at the lecture and that a great amount of interest had been aroused. He stated that national recognition is being given to the work of the lighting bureau of the Commercial Section of the Pacific Coast Electrical Association.

Mr. Baker urged that steps be taken to bring to the attention of the fixture manufacturers the need for new fixtures more in keeping with the furnishings of the modern home. He stated that since fashion is now largely dictating the furnishing of the home, fashion will dictate future fixture installation. Mr. Baker showed drawings of new fixture designs. The majority of these new fixtures require lamp wattages from two to four times those of present fixtures in order to achieve the proper lighting effects.

Stores Section Improves Stock-Turnover Ratio

In the considerations of this section the problem of most importance always is that of effecting a more economical ratio between supplies turnover and stock on hand. In commanding recognition of its efforts in this regard figures were presented at this meeting which showed that inventories have been reduced so judiciously that today member companies are averaging the equivalent of six complete stock turnovers annually as compared with only three turnovers annually as little as five years years ago.

Thought also has been directed toward determining just what quantities of advance supplies should be carried on hand. Substantial reasoning was presented in support of the plan of carrying only a 90-days stock on hand, with due consideration present and but slightly fluctuating price levels.

The three papers presented represented thoughtful analyses of the subjects that had been assigned to the subcommittees headed by the authors of the papers: Ordering and Receiving of Materials, by William Maddock of the Los Angeles Gas and Electric Corporation; Disbursements and Returns of Materials, by William deWaard of the San Diego Consolidated Gas & Electric Company; and Inventories and Price Making, by W. J. McCullough of the Southern California Edison Company.

Urge National Section on Transportation

The necessity for a National Transportation Section of the N.E.L.A. proved to be one of the main topics of discussion at the Transportation Section session Tuesday afternoon. A coordination of ideas and exchange of information as to systems of accounting and standardization is felt to be necessary. Against the time when the N.E.L.A. sees fit to form such a section, however, steps were taken to increase the contact of the local section with transportation men of Eastern companies.

One of the important subjects discussed was the matter of economy in fleet operation of transportation equipment in public utilities. The use of electric trucks, too, came in for discussion. It was felt by those who have had experience with them that in flat country, in and around congested metropolitan areas, on short mileage and where frequent stops are necessary the electric truck can be used to advantage. Where topography is hilly and the runs are long, the gas truck is still preferred. Superintendents of transportation departments present expressed themselves in sympathy and anxious to co-operate with the building up of electric load at off-peak hours.

A subject given some thought was the cost of labor saving devices installed on trucks in connection with the wear and tear on the truck and gasoline consumed for other than propelling the vehicle. Decrease of body weights and loads; amount of man power needed for various classes of work; Motor Vehicle Act definitions of chauffeur, truck driver and operator as respecting public fleet operation; and standardization of body design, wheel base, length of cab, etc., were also discussed.

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Importance of Advertising Emphasized in Report

Without public acceptance and demand for electric service, efficient plants, distributing systems and sales staffs are of little avail to the industry. This statement was the keynote of the annual report of J. Charles Jordan, advertising manager, Pacific Gas and Electric Company, and chairman of the Advertising-Publicity Section, delivered on Tuesday afternoon. Reviewing the section's activities for the year, Mr. Jordan stated that the industry's advertising and publicity had helped to create public acceptance not only for products but also for the member companies.

During the year the section has held to its purpose of interchanging ideas on the improvement of advertising to the advantage of member companies and the other component parts of the industry. The development of advertising designed to assist in load building campaigns has received primary attention. The result has been fourfold: more wiring done, more appliances sold, increased consumption and better service to the public at decreasing cost.

Accounting Problems Studied at Section Session

The large gathering which attended the Accounting Section meeting on Tuesday afternoon testified to the growing importance of the work of this section.

F. C. McLaughlin, chairman of the interpretation of accounts committee, expressed the opinion that while considerable work was accomplished during the past year by this committee, something of a more definite nature should be accomplished and in his report made recommendations for enlarging the scope of the committee's activities during the coming year.

In reporting on accounting in connection with line construction, C. C. May, chairman of that committee, recommended that further study be carried on during the coming year as a part of the plan to concentrate on a standard interpretation of "uniform classification of accounts."

Owing to the absence of L. A. Reynolds, chairman, the customers records committee report was presented by O. L. Moore. It consisted of a full description of the bookkeeping system used by the Great Western Power Company. This report was made as a supplement to the 1927 Accounting Section report of the Pacific Coast Gas Association and describes in detail the use of a system using tabulating equipment. Considerable interest was shown in a discussion of the possibilities of a system based on the use of card punching and tabulating machines.

A most complete report of the work of the joint pole records committee was presented by William Haeckel, chairman, showing the value of joint pole practice and an efficient method of keeping the records.

In commenting on the plan outlined by the real estate and tax records committee, C. D. Cushman, chairman, called attention to the many require-

High life on Mount Lowe when the women delegates climbed it—electrically of course.

ments which make clear and concise real estate records a necessity. It was recommended that a committee be appointed during the coming year to outline a system of tax records which would be the equal of that prescribed for use in connection with real estate.

The meeting was concluded by the presentation of a paper by W. C. F. West entitled "Statistics—the Life Blood of Business."

Accounting Described as the "Eyes" of Industry

Bringing out the fact that the accounting department by seeing as the eyes of a public utility can play a definite part in load-building, O. L. Moore, auditor of the Los Angeles Gas and Electric Corporation, presented the Accounting Section's contribution to the general session that was devoted to a competition for a prize of $100 to go to the section telling the best story of how it can assist in load-building. The paper was illustrated with a series of charts and lantern slides.

Mr. Moore in discussing the work that the accounting department can do, pointed to the elaborate records of past performance and possible future trends that accountants maintain. System, territorial or individual loads may be studied, trends in load factor observed, efficiencies and costs analyzed, increases in connected load visualized, and bases for remuneration or reward based upon performance established—all from accounting department records.

These records, Mr. Moore declared, furnish a basis upon which load-building programs can be developed and planned. He cited five "I's" in proving his point. The first was information. Data necessary to convince the commercial department of the value of increased load are supplied by the accounting department; weak spots on the system are shown. The second "I" is inspiration. Records prove to the new business department the effect of increased load on operating efficiencies and furnished a thorough conviction that the success of the company depends upon their efforts in securing new load.

Inspiration is followed by initiative in devising ways and means for accomplishing the sales task undertaken. Obstacles are uncovered and frequently the accounting department is called on to assist in overcoming them. The fourth point is installation, and before the installation can be made the accounting department must again be called upon, most frequently in the development of new rates to serve the new types of load. Rates are drawn up, their effect on revenue studied and they are finally placed in effect. Thus the salesman's task is made easy and increased installation results.

Lastly the accounting department is vitally concerned with the last "I," incentive. Records of the accounting department show the performance of the business getters and the successful districts. The management is able to establish rates of remuneration and to give credit where credit is due.

Commercial Section Shows Old and New Kitchens

"Two Kitchens," a two-act playlet, was presented by the Commercial Section at the general session Wednesday morning as its entry in the contest to determine what each section can do to assist in load building. The first kitchen shown in the playlet was representative of the majority of homes of the type that pay a minimum electric bill. The second was a typical kitchen in a modern electric home of the type that has an average bill of $8.75. The playlet opened with a short section of motion picture that presented the following declaration of policy for the Commercial Section:

"Any banker in an address on business conditions will, in the course of his remarks, refer to the great American industries and rate them in the following order of their importance:

(1) Agriculture, (2) Transportation, (3) Petroleum, (4) Electrical, (5) Lumber, (6) Steel, (7) Textile, (8) Automotive, (9) Communication, (10) Coal.

"They are all wrong, because the greatest industry of the present day is the American household.

"The Commercial Section in offering its contribution for today's program believes that the greatest load building

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opportunity is in the home. Time would not permit us to present the entire home so the section has selected the kitchen, because here is the workshop of the home and it provides the best avenue to increase the sale of kilowatt hours.

"In California there are over 1,100,000 homes being served with electricity; 40,000, or only 4 per cent, are cooking electrically. Each year in this state, there are built on the lines of the central stations 65,000 new homes. Here is a load-building job upon which the industry should concentrate and the Commercial Section proposes the slogan, 'Electrify the Kitchen!' "

The other playlet showed a kitchen containing a gas range, an ice box, a small lamp hanging from the ceiling by a drop cord, and a housewife engaged in cooking the noon meal and at the same time attempting to do the weekly ironing.

The second act showed the kitchen in a modern electrical home containing an electric range, an electric refrigerator, an electric water heater, a modern kitchen lighting unit, ample convenience outlets, a combination sink and electric dishwasher, etc.

The playlet was received enthusiastically by the large audience that was present at this section. It was written and produced under the supervision of W. C. McWhinney, assistant general commercial manager, Southern California Edison Company and chairman of the Commercial Section. The actors and actresses were also drawn from the ranks of the electrical industry in southern California.

Transportation Section Puts on Novel Stunt

The part played by the Transportation Section in load building was presented cleverly and graphically by an illustrated song at the second general session Wednesday morning. Oscar Taylor, baritone, sung a parody on Kipling's famous ballad, "The Road to Mandalay." The words of the song, which was entitled "Transportation Leads the Way," follow:

In a homely old brick building
With a smell of gasoline
Dwell a bunch of rough-neck workers
Who are part of your machine.
When conventions are in session
And you figure out a plan,
Don't forget the trucks and roadsters
And the transportation man
And the transportation man.

(*Chorus*)
Transportation leads the way
To the customers, we say,
And, if you would keep them happy,
You must work without delay;
If the salesman makes a promise
To deliver right away,
You had better recognize us
Or there may be hell to pay.

If it's kilowatts you're needing,
You may think that all is well
When you get a dozen salesmen
Who know how to ring the bell;
But the salesmen can't deliver
Poles and cross-arms by the score,
And if someone doesn't function,
Then you'll have to close the store
Then you'll have to close the store.

(*Chorus*)
On the road to San Jose
Toward the closing of the day,
There's a woman who is hungry
While her range is on the way;

"McTavish F'rinstance"

WITH a motion picture graphically and amusingly illustrating its value as a factor in load building, the Advertising-Publicity Section captured the $100 prize in the stunt program of the convention's Wednesday morning session. Competing with the advertisers were the Commercial Section with a playlet, the Technical Section with an address, and the Transportation Section with an illustrated and well rendered song. Opinion of the judges was unanimous, however, that "McTavish F'rinstance," the motion picture, won first honors by a wide margin.

The picture showed scenes in the home of Duncan McTavish, whose wife is still a kitchen drudge with no better equipment for her household work than her mother had before her. Advertising, brought to the McTavishes in magazines, newspapers and direct-mail broadsides, develops an electrical consciousness which eventually finds expression in complete electrification of home and farm.

The picture was made and directed by Al C. Joy and Sydney W. Green of the San Joaquin and Great Western publicity department. Mr. Green, who did the photographic work, says he started out on his job equipped with a little De Vry camera, a hammer, and an allowance of $150. Special sets were built and special lights installed for interior scenes. The photography was excellent all the way through, and the picture as a whole would have done credit to professional production.

Numerous requests have been received for its presentation before advertising clubs.

But the Reo is a'rolling,
And the driver is O.K.,
He'll make good and she'll be happy,
For he never goes astray.

There's a man in your head office
Who is called the President,
Oh, he watches every dollar,
And he wants his eight per cent.
When he dishes up the quotas
For the merchandising plan,
Tell your salesman to be careful
With the transportation man
With the transportation man.

(*Chorus*)
For your troubles fade away,
When this impulse you obey
And play fair with transportation,
Or the Boss will soon be gray.
Transportation is important
When there's dividends to pay,
So we'll help you in load building
With the Mack and Chevrolet.

Research Paves Way for Load Builders

NO INDUSTRY can trace its origin more clearly to research than can the electrical industry. As its contribution to the realization of a true load-building program, therefore, the Engineering Section presented "Research and Its Contribution to Load Building, prepared by L. A. Hawkins and A. K. Baylor, both of the General Electric Company, in collaboration, and presented by Mr. Baylor. Mr. Hawkins is executive engineer of the research laboratory and Mr. Baylor is connected with the executive department of that company. The following abstract gives some of the more important points touched upon in this presentation.

Brazing in hydrogen offers almost untouched possibilities. In a hydrogen atmosphere molten copper spreads over steel surfaces much the same as oil spreads on water. Like an oil film in a bearing, the molten copper under these conditions is drawn by capilarity between two pieces of steel that are pressed together and, upon cooling, will hold the steel sheets together with a tensile strength equal to that of the steel itself. Copper brazing in a hydrogen atmosphere opens up new and economic methods of fabrication and as industry becomes acquainted with the advantages, electrically heated hydrogen furnaces will multiply rapidly. Electrical energy will be required not only for the furnaces themselves, but also for the electrolyzers producing the hydrogen. This hydrogen generation may be developed readily as a completely off-peak load through the use of adequate storage tanks for the hydrogen gas.

Co-operation of architects, ventilating engineers and central station companies may well be expected to create large new outlets for electrical energy in residences as well as in other buildings. The applicability of electric heat is largely a matter of economics because its cleanliness, ease of automatic control and noiselessness already have made it the ideal form of heat. Convenience, too, is an item of importance, particularly in the household, and now that highly effective and comparatively inexpensive materials are available for thermally insulating houses, and since by heat storage this type of energy consumption may be made wholly an off-peak load, the foundation has been laid for intensive development of this type of heating.

In industrial processes where electric heating may appear at first glance to be too costly, careful analysis often shows more than sufficient counter-balancing effects through improved product, expedited operations, fewer rejectionable defects, increased output, and lowered labor costs.

Looking further into the future, it is possible to see the developments through which the same equipment that is used for heating a house or building in the winter may be used for cooling purposes in the summer.

Vacuum tube design is progressing at a rate that suggests many new applications for it. In the case of the farmer who lives in the very shadow of a transmission line and yet lacks the benefits of electric service because of the cost of the transformation equipment required to serve him, it is conceivable that vacuum devices will be developed that will make possible the direct pick-up of small amounts of power direct from high-tension lines. Research in vacuum devices indeed holds promise of yielding transformation and protective equipment for this class of service that will be of sufficiently low cost to make installations feasible.

Out of 4,000,000 miles of improved roadways in the country there are less than 1,000 miles of rural roadways served with efficient highway lighting. This is in spite of the fact that such lighting is becoming increasingly necessary for public safety and traffic relief. Efficient highway illumination will double the ton-mile capacity or motor-mile capacity of highways while the cost of building ONE mile of additional highway will buy lighting equipment for TWENTY miles of highway. The farmer whose lands must stand their portion of highway costs will benefit through the in-

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cident simplicity of serving him with electricity from lines built to serve the already self-sufficient load of adequate highway lighting.

Arc welding and the electric furnace offer at once a valuable source of load and meritorious improvements in industrial processes. Only a small fraction of the total tonnage of metals and alloys are handled by electric furnaces, and yet the best steel and other alloys unquestionably are produced by the electric furnace. Only with the electric furnace can the highest refinements of the metallurgist's art be reached. For much of the metallurgical production the gain in quality alone would justify the expense of changing over to electric furnaces. Certainly the development of new and better alloys will accelerate as the use of electric furnaces becomes more general.

Arc welding has made great progress in the last decade and its techique has been improved markedly through research, to say nothing of new methods developed wholly by research. Of these new methods the most interesting is the atomic hydrogen process through which it is possible to weld metals heretofore practically impossible to weld satisfactorily. Through the atomic hydrogen process not only can metals most difficult to weld, like aluminum and high chrome steel, be welded satisfactorily, but on ordinary steel welding jobs the hydrogen completely excludes all oxides and nitrides, resulting in a weld which is wholly ductile and which may be judged safely by inspection alone. Arc welding may confidently be expected to experience great extension.

To cure rickets it is not necessary any longer to treat the patient with ultra-violet rays, for food rich in vitamin D will cure rickets and ultra-violet rays will produce that vitamin in some foods, or in an element of those foods known as ergosterol. Here is the first use of electricity in directly improving the dietetic value of food. It may be only a small beginning. Little is known about the nature and origin of the other vitamins, but it requires no stretch of the imagination to forsee a widespread use of electricity in the preparation of the most healthful foods.

Bodily processes upon which health depends are chemical or electro-chemical. Indeed, all chemical reactions are, in the last analysis, electrical. It seems but reasonable, therefore, that the one agent best adapted to the control and regulation of the body should be electricity.

That presumption, seized upon by quacks and charlatans to further their predatory operations has brought electro-therapy into disrepute. However, science slowly is revealing the true potentialities of electricity in therapeutics. X-ray treatment for cancer, ultra-violet rays for the cure of rickets, skin deseases and tuberculosis, and high-frequency dia-thermy for muscular troubles now are recognized as potent weapons in the war against human ills and there is reason to hope that electro-therapy in the proper hands will become an increasingly important arm of medical service.

High-frequency fields now can be produced of sufficient strength to heat the entire human body to produce an artificial fever under closest control as to itensity and duration. Apparatus similar to high-frequency radio apparatus has been made to generate electro-magnetic waves of extremely high frequency and the presence of the body in the field of those waves is all that is necessary to cause the artificial fever just mentioned.

Fever is nature's method of combatting infection, and now the physician may have at his command the means of producing fever at will. Furthermore, the temperature rise in different parts of the body may be made selective to some extent by proper adjustment of the frequency. In such ways as this electricity may contribute in the next 50 years as much toward man's physical welfare as it has contributed in the past 50 years to man's industrial and economic prosperity.

Only in recent years has the seriousness of the deprivation of the benefits of natural sunlight been recognized. Especially in the case of children is the lack of strong sunlight serious, but the lack also is becoming recognized as an important factor in the health of factory and office workers. Whether it be winter or weather conditions, the smoky atmosphere of industrial centers, or enforced indoor life that brings about the shortage of sufficient effective natural sunlight with its ultra-violet content, modern equipment developed through research stands ready for use to make up the shortage. Whether it be in the school room, the hospital, the home, the factory, or the office, lamps and equipment already developed may be installed to deliver as freely and as beneficially as the sunshine itself the all-important ultra-violet rays. Such true "daylight" lighting would increase power consumption and improve public health.

The millions of dollars that are expended annually by the industrial research laboratories and organizations represents a tax of but minute percentage upon the total gross value of the products which, of course, must bear this expense. Curtailment or interruption of research activities must inevitably paralyze human and industrial advancement.

"Herr Doctor Steigel," herald of a new economic "German invasion" and hoaxer par excellence.

Luncheon Group Spellbound by German Industrialist

Characteristic of the entire convention program, the surprise feature of the past presidents' luncheon, held Wednesday noon, proved one of the most popular numbers on the program. With the spacious dining room of the Huntington Hotel full and a waiting line at the door, retiring President "Jack" Frost introduced a Dr. Herman Steigel as a German scientist of note as the head of a large German electrical manufacturing company and asked him to speak for a few moments upon some of the important and interesting features of electrical developments in Germany.

Dr. Steigel proved to be a witty and entertaining speaker using good English with some accent and showing a remarkable appreciation of the American point of view. After outlining at great length several developments, including electric cooking, lighting and heating, to say nothing of electric operation for German railroads and describing some startling features of a 24-hour continuous-operation electric range which he stated that his company was about to introduce into the Western market, the speaker electrified his audience with the statement that a 25-year international war for commercial supremacy already had started with the United States foredoomed to defeat.

As the speaker made these startling declarations, showing in a dramatic fashion their import, the 500 persons in the dining room were held by apprehension of its consequences to a strained, tense silence.

The anti-climax came a few moments later when Mr. Frost introduced C. C. Crockett, Hollywood's famous character actor, whereupon "Dr. Steigel" arose, removed his mustache and wig and acknowledged the introduction.

Past Presidents Urge Better Industry Unification

R. H. Ballard, president of the Southern California Edison Company, and A. B. West, president of The Southern Sierras Power Company, respectively the first and the sixth presidents of the Pacific Coast Electrical Association, were the only past-presidents to grace the board set for them by retiring president W. L. Frost.

Other dignitaries sitting at the head table included P. S. Arkwright, president of the Georgia Power Company and incoming president of the N.E.L.A.; C. E. Grenewood, commercial director, N.E.L.A.; A. Jackson Marshall, secretary, N.E.L.A.; and S. H. Taylor, secretary, P.C.E.A.

In a few brief remarks A. B. West expressed the belief that the current specious attack upon the electric utility industry would not seriously influence the thinking minded public. He pointed out that the vicious propaganda that was being carried in the press was principally carried in the columns of two chains of newspapers already notorious for their misstatements and half-truths. According to the speaker the attack has been planned for a long time to serve the ends of a minority group and was carefully timed to break at a moment when the attention of the general public was focused upon matters of importance and national interest and at a time when unscrupulous politicians were looking for something or some group to attack for a grand-stand play incident to the national elections.

It is the belief of Mr. West that the attack has had but limited success and that it has not met with general popular acceptance.

"Build load" in every possible channel and through every possible activity was the keynote of the remarks of R. H. Ballard. Mr. Ballard stated that the addition of new load and the improvement of load factor is the common problem of the electric utility and that the responsibility, while technically resting upon the commercial departments, actually rests equally upon every department. Particular attention was drawn to the engineers as being men technically trained and practiced in logical, precise, methodical attack upon large problems, and consequently a logical group to turn to for specific assistance in the solution of the problem of how to build load intelligently.

In commenting upon the Atlantic City N.E.L.A. convention, Mr. Ballard reported that John B. Miller, of the

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Southern California Edison Company, had served notice of his inability to give further of his time to N.E.L.A. affairs at the present time. This means that the West will lose what would have been its next opportunity to place one of its men as president of the national association, but it is understood that the national convention will come West in 1930 as expected. August Hockenbeamer, president of the Pacific Gas and Electric Company, was asked to step into the breach, but did not feel that he could devote the required time.

Mr. Arkwright stated that he thought the Senate investigation was a good thing for all parties concerned because the industry had nothing to cover up and because it would startle the industry out of the complacent attitude that must retard progress. He stated also that a broader view, greater alertness, and much greater co-operation are badly needed among the many component parts of the electric utility industry.

Talks Sponsored Before Many Organizations

During the past year the public speaking committee has sponsored talks before 657 organizations, reaching a total of more than 66,000 individuals, according to M. H. Schnapp, chairman, who reported at the Wednesday afternoon public relations session. Mr. Schnapp defined the purposes of his committee as being:

1. The exchange of methods and ideas between companies.
2. The training of the individual in public speaking.
3. The carrying of the story of the utility industry to the public.
4. The development of the members of the industry to be worthy representatives of their companies before the public.

In conclusion Mr. Schnapp recommended to the incoming committee that the facilities of the university extension courses for the training of speakers be not overlooked.

Training Courses Described and Effects Shown

In giving a survey of the work of the industrial relations committee at the Friday afternoon session, E. G. McCann emphasized the two forms of educational courses being offered employees by member companies. The first of these is the general educational course which supplements the work of the public schools for the benefit of employees who wish to better their background in order to fit themselves for advancement. The second is the specialized training preparing the student for the particular job he now is occupying or is about to undertake.

Among the latter type of courses are three of special interest. The cadet courses are designed to bridge the gap between the school and commercial life. They often form the initial contact of the salesman or the engineer with his new work.

A second type of course which has smoothed many of the internal problems of the company is that which offers specialized training to those contacting the public. A study of the problems of this field in one of the member companies recently revealed the fact that most of these positions were very poorly paid. Raising the standard of remuneration and insisting on a higher type of indivdual to fill the positions resulted in much more satisfactory customer relationships and it was felt fully repaid the additional cost.

A third type of course of particular interest is that designed to teach those in positions of authority how best to supervise the work of those below them—a field which has hitherto been generally overlooked as an opportunity for training.

Recommends Follow-Up on Essay Contests

A recommendation that the essay contest idea be continued for the coming year was made by W. P. Graef in reporting for the customer relations committee at the Public Relations session, Wednesday afternoon. He suggested also that the essays of past years be gone over to extract the valuable suggestions contained therein and that these be printed in booklet form with the name and company of the author attached to each. He pointed out that 15 per cent of the

Engineering—C. F. Gilcrest, section chairman, and his entry in the convention contest, A. K. Baylor of General Electric.

entries came from departments other than commercial, quoting some of the suggestions made from such sources.

One lineman, for instance, suggested that when it is necessary to place poles on a consumer's property in making an extension the reasons for this necessity be carefully explained to him at the time or before the work is done. A meter reader makes the suggestion that as first impressions are strongest the connecting up of a new meter should be the signal for presenting the customer with literature designed to give him an understanding of the company and that all his initial contacts be handled in an especially friendly manner, so that he feels himself welcomed.

There are 967 contestants in the 1928 contest, with a total of more than 2,500 essays submitted in all the contests to date. Mr. Graef announced DeWitt Scott of the San Joaquin Light and Power Corporation who read his winning essay.

Home Service Described at Women's Session

Miss Eloise Davison reported on the work of the National Women's Committee at the Wednesday afternoon public relations session, taking as her subject, "Training the Homemaker to Use Electricity." She emphasized the importance of housework in the sum total of the nation's industries and the part which electricity could play in alleviating the task of the housewife. The work of the home service department, of which she is the director, can best be outlined by listing some of the demands made upon them, which fall under the four following heads:

1. Buying standards for household equipment.
2. Household problems in rural electrification.
3. The installation of household equipment laboratories in colleges and universities.
4. Establishment of short courses for women in the electrical industry.

Along all of these lines the home service department has made studies and established channels of co-operation so that they can tie in with the work of the local groups interested in the same field.

Winning Essay Praised at Women's Meeting

The past year has been one of organization and progress among the women of the industry as indicated by the report of the women's committee made by Mrs. Ruth E. Creveling at the general session of Wednesday afternoon. At the present time active women's committees are functioning in almost all of the major electrical utilities of the district.

The procedure has been to hold one monthly meeting of each local group, at which programs covering educational subjects of the industry are taken up. Special emphasis has been placed this year upon the use of electricity in the home.

Through the co-operation of Dr. Bertola the women of the electrical industry have co-operated with the California State Federation of Women's Clubs in putting over the program for bettering home conditions and have made several talks before women's clubs. The committee has emphasized the importance of electrifying the homes of members of the electrical industry and done what it could to bring this end about. The subject of First Aid has also received particular attention. Mrs. Creveling introduced Miss Helen Cowan of the San Joaquin Light & Power Corporation, winner of the

women's committee essay contest, who read her essay on "How the Women's Committee Promotes Good Will." Miss Cowan's essay, which received praise for its sincerity and clearness, follows:

Not many years ago women of the United States suddenly found themselves with the legal right to have their opinions taken seriously—the terrifying prospect of the vote, demanding a serious opinion to be taken. Women of the public utility industry are finding themselves in somewhat the same situation today, as members of one of the most important organizations of their community and one of the most discussed industries in the United States.

"How are our electric bills figured? Why does the power company need to sell so much stock? Has the government any control over our power company? Ask Mary Smith. She works for the power company—she ought to know." Mary Smith had graduated from business college six months before, and was spending her days at the office adding figures; so these questions left her dazed and breathless. But not for long. One of the first courses directed by the women's committee of the Pacific Coast Electrical Association in each organization was a study of the home company, its history, financing, and relation to the community.

"Will it cost us too much to use an electric stove? Is the electric ironer really practical? What can we do about these broken cords? Ask Mary Smith. She works for the power company—she ought to know." In this field Mary was soon an authority. A course in "More Power to the Home" was given last year by the women's committee, covering wiring, lighting, appliances, and all the intriguing uses of electity in the home.

"Boulder Dam? Power trust? Public ownership? Ask Mary Smith. She works for the power company—she ought to know." And thanks to the women's committee she will know something of these questions; for the study of public problems of the industry is the course to be followed in the companies of the Pacific Coast Electrical Association this year.

A well-informed group of public utility women is one of the greatest wood-will assets the industry can have. An intelligent opinion expressed by Mary Smith, who "works for the power company," is worth far more to her friends, and the friends of her friends, than the impersonal editorials of partisan newspapers. Her knowledge of the uses of electricity in the home is more potent than the sales talk of a strange salesman. Good-will is the product of the public's understanding of the utility, a feeling of personal relationship which can come only through contact with the employee. And the women's committee of the Pacific Coast association is responsible for the educational program which is making public utility women able to meet their new and weighty responsibility as spokesmen for their company.

Good-will products of the women's committee work include also more cordial relationship of the employee with his company, through identification with its interests and problems, and greater co-operation between employees, resulting from frequent contact in study and recreation. Mary Smith says so. She works for the power company—she ought to know.

How the Woman's Viewpoint Affects Sales and Policies Is Told

"SPEAKING for the Housewife," was the subject chosen by Miss Clotilde Grunsky, Pacific Coast editor of Electrical Merchandising in delivering the feature address at the Public Relation's session of Wednesday afternoon. Miss Grunsky commended the work of the women's committee to date which had been directed principally to educating the women of the electrical industry in the more general aspects of their work so that they might go out and explain their industry to the feminine members of the general public. In addition to this function of "speaking to the housewife," however, she felt that women had a contribution to make by representing the woman's viewpoint within the electrical industry and "speaking for the housewife" in helping to formulate plans for commercial load building and for the bettering of public relations.

As examples of some of the fields in which a woman's viewpoint might be of value to the electrical industry, Miss Grunsky emphasized the importance which the housewife places upon the contacts made through the individual from which she buys her appliances and pointed out the importance to the power company of seeing to it that retail outlets, whether power company, contractor dealer or department store, be up-to-date and friendly.

The housewife's objection to the unexplained inspector of electrical appliances and to the meter reader salesman were also touched on.

In selling ranges, Miss Grunsky pointed out the importance of the saleman's knowing something of cooking, the advantage of keeping the housewife instructed in the use of her range, and the need for a faster range to meet the one remaining objection of the housewife to electric cooking. Refrigeration recipes which do not always work and sales arguments which over-emphasize the long time storage of food were also criticized, and she pointed out that there is need to educate the architect and builder to leave space enough for a large enough machine to meet household needs.

To the Ladies—Ruth Creveling, chairman woman's committee, and Clotilde Grunsky, Electrical Merchandising, feature speaker of the women's meetings.

The woman within the industry has a word to say also on the importance of demonstrations in selling ironing machines and the inadvisability of overselling the fancy work to be done by the ironer. In the fixture field, Miss Grunsky stated, it is difficult to attempt to merchandise a standard line of fixtures when what the housewife is looking for is individuality, and made a plea for the development of a new art in this field.

The unfortunately large number of substandard appliances which are being sold into the homes are creating a problem in public relations and therefore are a responsibility of the public utility as well as of the city inspection department. Miss Grunsky pointed out the growing danger of this cheap equipment and its menace in alienating the good-will of the housewife.

In conclusion, she commented on the work which is being done by the women's magazines in establishing laboratories and answering questions outside of the columns of their papers and suggested that the power company might divert some of this good-will to itself by establishing its own laboratory and coming to be known as a source of unbiased information on household problems.

Miss Grunsky urged the fuller use by the electrical industry of the women's viewpoint in the formulation of sales and public relations policies.

Grills Commercial Manager as to Selling Policies

"Commercial Manager—Duly Sworn" was the title of a skit presented by A. M. Frost, commercial manager, San Joaquin Light & Power Corporation, and George C. Tenney, managing editor, Electrical West, as the Commercial Section's contribution to the convention at the general session Thursday morning. The presentation took the form of an interview in which Mr. Tenney questioned Mr. Frost regarding the policies, functions and operation of a power company commercial department.

Discussing the organization of a merchandising department, Mr. Frost said:

"My limited ability to make an intelligent observation leads me to the conclusion that men who have been trained as public utility executives and who are successful ones, of whatever department, know little about merchandising. The head of a merchandising department needs a substantial knowledge of public utility policy so that he may carry on his endeavors in a manner that will promote good public relations and keep the people operating other outlets for electrical equipment in a frame of mind that will encourage them to go on with their work and recognize the merchandising department of the power company as an aid to the development of their business instead of a competitor that is attempting to tear down their business.

"I say that the head of a merchandising department should have a free hand to hire and fire, to buy and sell. Merchandising to be successful cannot be hampered by the complicated, tedious and slow procedure that characterizes the usual public utility functions."

Speaking of the attitude of the industry toward the contractor-dealer,

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Mr. Frost urged that the contractor-dealer be treated as an individual. He said:

"The contractor-dealers, as a group, have been blamed and defamed for all of the faults and shortcomings of their most inefficient member. I don't think this is fair; I think the central stations are overlooking a great opportunity for the promotion of their business when they fail to deal with the contractor-dealer as an individual rather than a class. The Electragist movement is doing much to give the contractor-dealer with little business experience instruction in the conduct of his business. If this movement is carried on to its proper conclusion, and I feel confident that it will be, the inefficient contractor-dealers are going to eliminate themselves."

In response to a question regarding the relation of sound merchandising policies to good public relations, Mr. Frost advanced some new ideas on the subject. He stated:

"Personally I am not enthusiastic about the term 'public relations.' Individuals do not like to be thought of as one of a great mass of inhabitants or the public. They like to feel when they deal with anyone that they are receiving individual consideration.

"When we say we have public relations departments, it seems to me that we are admitting the shortcomings of all of our other departments and putting the thought in the minds of the public that there must be something wrong with our institution. When I hear that any business has organized a public relations department I immediately feel that something must have slipped badly, somewhere, in the dealings between that company and its customers or that sort of thing would not have been necessary. If we hire the right type of men and women and properly train them as to their responsibilities and make them feel that they are members of an industry they can well be proud of, that is made up of a high type of personnel, we won't need to worry about public relations."

Replying to a question as to what term he would substitute for "public relations department," Mr. Frost said:

"Since I have criticised the term public relations in its application to bureau, department or manager, I should advocate some substitute. Just as a suggestion, why not call it the 'Service Betterment Department' or the 'Manager of the Department for Service Improvement'? Service is the thing the public is buying from us, service is the thing they are paying for, and good service is the thing they are entitled to. It seems to me that by combining the word service with improvement or betterment, we are indicating to the public that while we think that we are fairly good, we are still on the lookout for ways and means to improve."

The Rising Tide of Taxation

As the contribution of the Accounting Section to the Thursday morning session, Rolland A. Vandegrift, director of research, California Taxpayers' Association, made a graphic presentation of the present trend of taxation

High power from the grape belt—Al Joy, whose three feature contributions made the convention "a joyous event," and another Frost (A. M.), new vice-president, not of cows or kilowatts but of the P.C.E.A.

and its serious effects upon business enterprise. He said in effect:

The question of taxation has become the most pressing economic problem of the United States. It is the most compelling factor in present-day business and often is the margin between profit and loss. The electrical industry well can devote its best energies to power production at the lowest costs, it can stimulate sales and increase gross income, but unless it be more than merely "concerned" with taxes—the greatest single item of overhead business expense—the industry has missed its largest opportunity to increase net profits.

It is imperative that business and utility leaders examine into the manner in which public funds are raised, what their purpose is, and how they are expended. It is essential to develop a sense of economy in the matter of government spending as well as in private business. If the private business spends too much it "goes on the rocks"; if government enterprise spends too much the taxpayer foots the bill. Public spending is a matter of psychology.

In a republic the quality of the community, state and national government is squarely up to the individual and if the required individual thought and attention is not given to matters pertaining to government, then it is logical that control falls into unqualified hands. The constantly rising tide of taxation is evidence indisputable that business methods are not being followed in many government organizations because the business leaders well qualified to inject into government the needed economic principles are "too busy" with "private" matters to give the time required for "public" business. And taxes continue to mount until it is inevitable that they will overwhelm the profit side of the ledger.

Indisputably, taxes are necessary to maintain government, but it is entirely illogical that gross profits all should be turned over to the tax collector merely because public finance is unwisely directed and because public improvements are carried on without proper thought to the ultimate cost. Bonds are necessary, at times, and bonds must be voted for essential improvements when such are determined under proper qualifications to be economically justified. Unwise bonding has pyramided outstanding local public debts until the costs of issues long expended and gone are consuming a large portion of the tax dollar. To vote forty-year bonds on improvements that will last ten, twenty or even thirty years obviously is financial suicide, and yet it is done every election.

Upon the basis of the present rate of increase in property valuation in California and the present rate of increase of bonded indebtedness, the bonded indebtedness within the next thirty years will equal the total assessed valuation. Since in California the utility and other corporations pay such a large proportion of the total state taxes it is particularly essential to future financial soundness that greater attention and effort be devoted to reduction in tax money expenditures and to sound budgeting of expenditures and less effort devoted merely to ways of raising more money with which to pay the increasing taxes.

Full Text of Joy's Talk to Be Published Later

"PUTTING a Soul Into the Corporation," presented at the general session on Thursday morning for the Advertising-Publicity Section by Al C. Joy, director of publicity for the Great Western Power Company and the San Joaquin Light & Power Corporation, was easily one of the best addresses delivered during the convention.

Because of the number of excellent and pertinent points made in this address, particularly as applicable to the present newspaper attacks, the entire address will be published in a later issue of Electrical West.

Mechanical Man Attracts Record Crowd

Televox is not a toy nor yet is it a mere novelty. Of course, popular imagination, fired by the newspaper title "mechanical man," has caused the now famous "Mr. Televox" to be regarded in some circles as a mere novelty, while in others it is expected that home installations of televox equipment will permit the absent housewife to order up the soup via telephone. Televox equipment is neither a novelty nor a mechanical "superman" as imaginative newspaper

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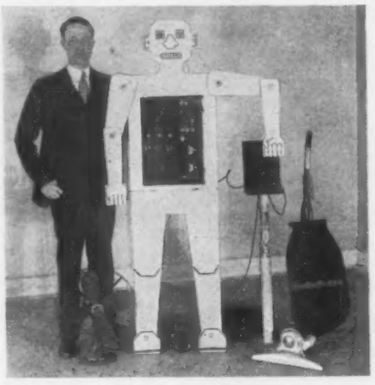
writers would have us believe, but is an ingenious combination of sensitive relays and vacuum devices developed through intensive and extensive research. It is a perfectly logical next step in the development of remote supervisory control equipment and one that undoubtedly will find many different profitable applications in the operation of power systems as well as in other fields.

Three of the devices are in operation in the city of Washington acting as watchmen over the three major reservoirs of the city's water supply. To check the water levels in these reservoirs the operator at the central office calls the telephone number required to effect a connection with the telephone at the reservoir in question, sounds whistle signals of predetermined tone pitch (or frequency) which corresponds to asking the question, "What is the water depth?", and the equipment answers with a series of buzzer signals, one buzz for each unit of depth.

This equipment as demonstrated at the P.C.E.A. convention at Pasadena consisted in the box of vacuum tubes and relay equipment surrounded by the popular framework of the "mechanical man," two telephone desk sets, batteries for the current supply and several appliances the control of which was effected through the televox equipment. P. B. Garrett of the Westinghouse Electric & Manufacturing Company was chief aide and adviser to "Mr. Televox," the two of them carrying on a whistle-and-buzzer conversation over the two telephones which caused a floodlight to be lighted or extinguished, started and stopped a



Man versus Robot—P. B. Garrett of Westinghouse (the one with the dark suit) exhibits "Mr. Televox," the obedient electrical servant little short of human.

fan and a vacuum sweeper in any desired sequence or grouping. Mr. Garret presented the demonstration at the Thursday morning session under the auspices of the Engineering Section and drew the largest session attendance of the convention.

Women's Activity Possibilities Outlined at Special Meeting

THE problems of the women's committee were discussed in detail at the Thursday afternoon session, presided over by Mrs. Ruth E. Creveling, of the San Diego Consolidated Gas & Electric Co., chairman. Miss Isabell Davie, in charge of the work at national headquarters, outlined briefly the organization and sources of material available to any who cared to make use of them. She then passed on ideas which had been found to work successfully in the various local sections.

Among these were: (1) Starting the meeting with current topics, (2) "Ask me another" meetings, (3) N.E.L.A. courses taken as a group, (4) Meter reading contest, (5) Reproduction of convention at meeting, (6) Good citizenship meeting, (7) Alumnae association, (8) Essay contest, (9) Public Speaking contest, (10) Making of movies, (11) Production of playlets, (12) Keeping of scrapbook, (13) Debates, (14) Publication of house organ for one month, (15) Women's bulletin, (16) Co-operation with women's clubs: (*a*) better homes convention, (*b*)better home-lighting tea, (17) Charity work, (18) Glee clubs, (19) Formation of electrical women's groups, and (20) Help in merchandise sales campaigns.

Miss Davie called the attention of member companies to the magazine for all public utilities which is available to be sent out to consumers and emphasized the importance of the work of the home service committee.

During the past year the first-aid work as a function of the women's committee has been organized and brought well under way in California. Mrs. Brice of the San Diego Consolidated Gas & Electric Company, who has had charge of this work, reported the formation of first-aid committees in almost all of the utilities. The work had resulted in a more thorough understanding on the part of the girls in the technicalities of electricity, particularly in the importance of handling electrical equipment in a safe manner.

It had meant the training of a large number of young women in first-aid work, many of whom were able to render efficient help in emergencies which arose entirely outside their company employment. One company found it useful to utilize the Red Cross course which enabled the graduates to obtain a certificate at its conclusion.

The public relations angle of this work had already showed itself, particularly as teams were being formed which were able to enter into contests and demonstrate the work before women's clubs and elsewhere.

Rural Contact

The importance of contact with the home demonstration agents of the local farm bureaus was emphasized by Miss Eloise Davison of the home service bureau. These women do a corresponding work with the rural housewife to what the farm advisers do for the farmer himself. Frequently their training has not included a specific background in electrical appliances and they welcome aid from the power company which will enable them to give the farmer's wife sound advice on what appliances to buy and how to take care of them.

Local Women's Committee Reports

There followed reports from the women's committees of the various power companies. Among them may be mentioned the monthly meetings of the Coast Counties Gas and Electric Company, some of the women members of whose organization come fifty miles to attend on their own time, the doll contest sponsored by the committee of the Southern California Edison Company and the educational and welfare work of the San Joaquin Light & Power Corporation's committee. The reports all showed the splendid work of organization which has been the outstanding achievement of the women's year.

High Scores Feature Annual Golf Tournament

Careful handicapping plus trouble on the difficult but interesting Flintridge course resulted in high scores for the majority of the 125 participants in the annual convention golf tournament held Thursday afternoon. G. A. Massey, Southern California Edison Company, was the principal winner. Mr. Massey won the Byllesby Cup, the Jobbers' Cup and the prize for low net in Class A with an 89, less 16, net 73.

The Pelton Cup for players with handicaps of 18 and over was won by D. P. Vail of C. C. Moore & Company Engineers. Mr. Vail also won low gross in Class B with a 93. Low gross in Class A went to H. F. Warren of the Westinghouse Electric & Manufacturing Company with an 84. Low net in Class B was won by S. S. Goode of the General Electric Company with a 95, less 20, net 75. Low gross in Class C was won by J. D. Kerr of The Southern Sierras Power Company with a 102. Low net in Class B went to M. K. Stewart of the Pacific Gas and Electric Company with a 103, less 26, net 77. First prize in the Kickers' handicap went to F. O. Dolson, The Southern Sierras Power Company; second prize to E. H. Fisher, Pacific Wire Rope Company, Los Angeles; third prize to F. V. Haver, Southern California Edison Company.

The golf tournament was handled by A. E. Hitchner, Los Angeles manager, Westinghouse Electric and Manufacturing Company, assisted by H. F. Warren of the same company.

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Federal Investigation Stand Stated at Public Policy Meeting

CLASSING the power company as the greatest community builder in American industry, Preston F. Arkwright, president of the Georgia Power Company, as newly elected president of the National Electric Light Association, addressed the convention on the subject,"A Citizen Wherever We Serve," at the public policy meeting held Thursday evening. Mr. Arkwright pointed out that wherever a power company goes it constructs work of permanent character that can never be moved away and that its first act on arrival constitutes a declaration that it has selected that particular place in which to become a citizen, not for just an hour or a day, but always. He stated that the power company does not give one character of service to the big city and a different character of service to the small town but that when a community or a district becomes a part of its system the entire capacity of the whole system wherever the property may be located is made available to that one individual community.

Mr. Arkwright pointed out that whenever a power company enters a home or an industrial plant it is merely the beginning of the service it expects to render and that it is constantly seeking to bring about the more extended use of its service to the benefit of that industrial plant or that home. He stated that the power company served the rich and poor alike with the same quality and adequacy of service and at the same rate. He said:

"There is no business enterprise of any type as much interested in building up the local community as the electric light and power company—selfishly interested in it, more than anyone else. We build it with the service that we furnish, and we build it further by devoting to its upbuilding every resource at the command of the company.

"Many of these companies advertise in national magazines the advantages of their particular local section. Many of them maintain departments whose exclusive business is to encourage the location of industrial establishment in their particular communities and in their partciular communities alone. These companies not only exert their own efforts for the advancement and growth of the territory but they join in every proper general effort initiated by others.

"Take for illustration a company that develops water power. We go up to the rivers that have been unutilized for centuries and but for the development of the electrical industry, would probably remain useless forever. We acquire the separate pieces of land along the rivers, paying more for them than anyone else would. After acquiring them, we leave the rivers there, we leave the land there, and we leave the money there that we paid for the land so that when that simple transaction is completed the company has doubled the wealth of that particular section. Then the company raises millions of dollars, brings it in and spends it for large permanent works of construction, and leaves it there, and the money used for it, expended mostly for labor in the immediate territory, is also left there. In the process, the company has injured nobody, damaged no property, taken nothing away, consumed nothing, polluted nothing. It brings nothing but benefits."

Commenting upon the rates charged for service, Mr. Arkwright said:

"We are the least selfish industry. We can get no inordinate profit. No matter how prosperous the town may be that we serve, our share is limited. At best we can only charge such rates and prices as will yield us a reasonable rate of return on the value of the property we have devoted to the service. We still may not charge a higher rate than the service is worth to the consumer, even if this requires the sacrifice of all return to the company. We are not only the basic underlying service under other people's activities, but, while they can take all they can make, we ourselves can take only a limited reasonable pay for the service we perform."

Mr. Arkwright in concluding declared that the power company is not an honorary but an active citizen in every community it serves.

Mr. Arkwright was introduced by R. H. Ballard, president, Southern California Edison Company, and chairman of the N.E.L.A. public policy committee. In introducing Mr. Arkwright Mr. Ballard spoke of the Federal Trade Commission investigation that the industry now faces and read to the delegates the declaration of policy included in the report of the public policy committee. This report, also endorsed at the Northwest Electric Light and Power Association convention, will be found in full in the story covering that convention.

Convention Is Enlivened With Good Music

One of the principal features of the entertainment offered the delegates consisted of a number of musical programs and musical numbers interspersed in the regular program. For instance, in place of the customary address of welcome by the mayor of the community, the convention was opened with twenty minutes of excellent singing by the Southern California Edison Company's chorus under the direction of Hugo Kirchhofer. Mr. Kirchhofer also lead community singing at both of the luncheons held during the convention and also following the president's reception.

A second musical feature consisted of the appearance of the Edison Symphonic Orchestra, Loren Powell, conductor, at the Public Policy meeting, Thursday evening. This orchestra, which broadcasts for the Southern California Edison Company, presented 30 minutes of excellent classical music.

Still another musical feature was a Spanish orchestra which paraded the halls of the hotel every morning, presumably for the purpose of awakening the late risers. This orchestra also played during breakfast.

"Electric Heat" Film Shows Industrial Possibilities

A motion picture trip through some of the largest and foremost factories in the country gave the Pasadena convention delegates something of a realization of the immense possibilities of the use of electric heat. Electrical equipment for commercial welding, for heat treatment of steels, for the refinement of metals and alloys, for the baking of enameled finishes, for industrial hauling and handling and for many other purposes was shown in operation.

Many advantages were shown to accrue through liberal use of electricity in industry, most particularly in this case in the field of electric heating. Electricity is cleaner and its ease and flexibility of control result in a uniformity of product which in itself in many cases was cited as more than paying for the cost of changing over to electricity. Labor savings effected through electrified industry were shown to be important factors while the reduction in floor space requirements of electric furnaces as against oil-fired furnaces was in the ratio of 4/1.

Two Factors Shown to Affect Red Seal Progress

Two fundamental conditions lie at the root of Red Seal progress, declared C. T. Hutchinson, chairman of the advisory board, California Electrical Bureau, in his report Friday morning. These are:

First: following a steady rise, building reached its peak in 1924 after which there was a sharp decline followed by a steady decrease which is still under way.

Second: the electrical industry gets an average of 2 per cent of the money expended for building, or 2 cents of every building dollar. Inasmuch as there are fewer dollars being expended for building each year, the electrical industry is getting 2 per cent of a constantly decreasing sum. As it is beyond the power of the electrical industry to increase building the only way it can increase its revenue is to reach out for a larger share of the building dollar,

"Load Building Dramatized at 1928 P.C.E.A. Convention"

which can only be accomplished through an industry market development program.

Such a program exists in the Red Seal plan, and its value to all branches of the industry is evident from the following figures derived as a result of extensive surveys of 500 homes:

A 100 per cent increase in the number of branch circuit outlets going into Red Seal homes.

All Red Seal homes wired for ranges as compared to .9 per cent of the non-Red Seal homes.

Forty-six per cent of the Red Seal homes wired for air heaters.

Consequent increases in the size of conduit, wire and switches.

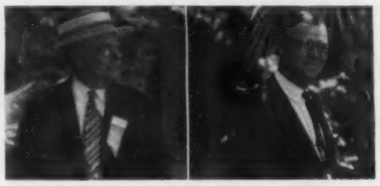
An increase in power consumption from 64 kw.-hr. per month in non-Red Seal homes to 495 kw.-hr. per month in Red Seal homes, with the revenue increasing from $3.20 per month to $11.21 per month.

An increase of over 25 per cent per year in the total number of Red Seal homes obtained, and a decrease of 66⅔ per cent in the unit cost per home to the industry.

These facts speak for themselves more ably than volumes of words, said Mr. Hutchinson, and leave little room for further hesitation on the part of those in the industry who have not already grasped the value of aiding the Red Seal plan to the fullest measure of success it may attain.

Describes Benefits From Trade Conferences

That the industry has pulled down the monopoly sign and the complacency that went with it, and has definitely entered the ranks of competitive selling was the declaration of C. E. Greenwood, commercial director of the N.E.L.A., at the general session Friday afternoon. Mr. Greenwood declared that the $30 bogey for annual sales to the average residence constitutes a challenge that the industry cannot ignore. Rather than a goal of 400, 500 or 600 kw.-hr. per residence, commercial managers should start with bogeys of 1,500 or 2,000 kw.-hr. per home, he stated.



Looking into the future, J. F. Pollard, new Commercial Section chairman, and N. B. Hinson, new Engineering Section chairman.

Industry team play was the remedy Mr. Greenwood recommended for solving its selling problems. In discussing the co-operative selling activities of other industries he stated that the electric light and power companies last year spent only 2/10 of 1 per cent of the gross revenue received for residential service in advertising. If electricity is to compete for its share of the consumer's dollar he declared that more money must be spent to create a national background of electrical consciousness.

Speaking of improved trade relations within the industry itself, Mr. Greenwood told of the three Joint Trade Conferences held during the past fourteen months. He said:

"The hardware trade, both wholesale and retail, and the Electragists criticized the merchandising practices of some companies which engaged in cut-price merchandising, premium giving and granting unsound terms. Certain trade associations stated that our merchandising business is usually conducted at a loss; that the power companies suffer losses in merchandising through what are claimed to be unsound merchandising practices and that they make up for their losses through higher rates to the consumer. Some of the trade groups at the outset questioned the right of the power companies to engage in merchandising at all and could see no benefit accruing to the public to justify the power companies remaining in the business.

"At the first conference the trades were not in the mood to recognize that there were so-called promotional expenses, not strictly a part of merchan-

Industry's Responsibility to Contractor-Dealers Shown by Electragist President

THE FACT that a large number of contractor-dealers are not conducting a successful and growing business proves that something is wrong in the business possibilities of this branch of the industry, declared Clyde Chamblin, president of the Association of Electragists, International, at the Friday morning meeting, after describing the progress of co-operative work between branches of the industry in California as much better than elsewhere.

"If there are substantial possibilities of success in any field," he said, men with ability and finances will be attracted to that field and eventually will crowd out the inexperienced and underfinanced. Why are not more men of this type being attracted to the retail end of this great industry then? It is because conditions are not right.

"Instead of investigating this question in a businesslike way and finding out what elements are necessary to build up a creditable electrical business," he charged, "we continually have flaunted in our faces the inane expression, 'the cost of wiring is too high, and the contractor-dealer is not capable of doing a selling job.'

"No power company man who ever used this expression would dare risk his capital in a contractor-dealer business.

"As long as such an atmosphere prevails there will be a widening breach growing up between the two branches. The surest way to wreck an organization is to have dissention from within, and I believe we are facing a very critical period."

Three little maids from San Diego—Helen Bragg, one of the essay contest winners; Nell Molloy, local woman's committee chairman, and Jean Cornelius for good measure.

Mr. Chamblin pointed out that the possibility of a united market development program is out of the question unless steps are taken to correct this economic condition within the industry. He illustrated the point by showing how a garage mechanic with a careless remark on the amount of gas needed by a car sometimes breaks down a sale which has taken much time and money to prepare.

"Spend more money to put your message before and to contact with the great army within the industry," said Mr. Chamblin, "and you will not have to waste nearly so much endeavoring to create public good-will and acceptance of your commodity," pointing to the sums being spent for research, for engineering and power development. "Why should not your sales engineers be just as highly trained as your development engineers and equal sums be spent in developing the market for your power along just as scientific lines as the development of the power itself?"

Mr. Chamblin pointed out the fundamental difference of viewpoint between power company and dealer as that between en masse and individualistic business interest and hence viewpoint. This viewpoint takes a real effort on the part of the central station to understand it.

"This understanding will not be brought about by a shrug of the shoulder or a wave of the hand," he concluded, "but if daddy central station and mother manufacturer and brother jobber and brother contractor-dealer will sit down to the family table and tackle this family problem in a loyal family spirit the solution will be found just as surely and as rapidly as you are solving your problems in development engineering."

dising as such, that were a feature of the utility load-building program and usually chargeable against the merchandising department. Nor did they wish to agree that they were immediately benefited from the expenditure of these funds by the utility through the creation of public acceptance for electrical goods. We must agree that our merchandising deficits in many instances do not represent the selling facts, and since the trades take our figures as the selling facts, it may be advisable to change our merchandising accounting system."

As a result of these conferences Mr. Greenwood reported that a set of trade principles has been drawn up that definitely outline the merchandising policies of the power companies. The dissemination of these principles to other branches of the industry should result in closer co-operation between all branches, in his opinion, with finally a great stimulation of the market for electrical appliances.

National Secretary Makes Comment on Convention

A brief review of the 1928 N.E.L.A. convention with particular reference to the exhibit was given by A. Jackson Marshall, secretary of the N.E.L.A., at the last general session, Friday afternoon. Mr. Marshall stated that his principal observation as a result of the convention was the generally fine "stiffening" attitude of the industry toward attack that had resulted from the Federal Trade Commission investigation. Mr. Marshall reported that the reorganization of the National Electric Light Association adopted in 1920 has now been perfected and that the majority of the geographic divisions are functioning in a satisfactory manner. He stated that new hotels and a new and larger civic auditorium at Atlantic City will permit the holding of a larger and better convention next year. He stated that the majority of exhibitors this year did not have sufficient space to show their equipment and that several exhibitors had been unable to participate in the exhibition. He reported that there will be ample space for all next year and issued a cordial invitation to the members of the Pacific Coast Electrical Association to attend the 1929 convention.

Mr. Marshall's address was followed by the report of the committee on the president's annual report and the report of the committee on resolutions. W. L. Frost, the retiring president, then introduced the incoming president, P. M. Downing. After acceptance of his badge of office by President-elect Downing, the convention adjourned.

It was held by everyone in attendance that this had been what Convention General Chairman R. E. Smith had promised, a thoroughly unique and original convention in all particulars.

More Kilowatts Per Cow

Al Joy's stupendous production, "More Kilowatts Per Cow," could in no wise be interpreted as a mute plea for bigger and better barnyards. It presented in three snappy shocks the revolution and evolution of Silas Bollweevil's farm from a place of inefficiency and unproductiveness to an "organization" complete in every detail—even including a vice-president in charge of cows' relations. This metamorphosis was of course accomplished through the super-wholesale use of collective kilowatts.

In the process of modernization Silas adopted not only every electrically-driven farm device, but used the administrative line-up of the Little Giant Light & Power Corporation as a model on which to perfect an organization of his own. Through this progressiveness he was able not only to harvest that cover crop with which every farm is blessed even if it grows nothing else, bigger and better mortgages, but became positively affluent in an unbelievably short time.

From ordinary farmer, for whom the Republican convention wept and bled, then, with the usual quota of cows, hired help, unpaid wages, mortgages and signs painted on the barn, Silas Bollweevil rose, in true bucolic romantic fashion, to be president —president and general manager in fact, of the Konsolidated Kilowatt Kow Korporation, with its usual quota of production units, vice-presidents, titles and salaries, dividends and automatic production machinery. When Silas pushed the buttons in the second shock it started all the Little Giant vice-presidents moving. But after learning how organization is organized, how letters are dictated, dotted lines signed and business is business, Silas set up buttons of his own to push which left nothing undone.

High lights of the show included a novel adaptation of the vacuum cleaner as a stableizer, the saturation of the electrically milked herd with kilowattic kontentment and other distinctive innovations which are recommended for the earnest consideration of the Committee on the Relation of Electricity to Agriculture—some rainy afternoon.

Lighting of Hotel Grounds is Feature

One of the outstanding features of the convention was the lighting of the beautiful grounds of the Huntington Hotel under the direction of Frank Van Gilluwe of C. W. Cole & Company, Los Angeles. Many of the beautiful trees, shrubs and palms in the hotel grounds were floodlighted, several of them in a variety of colors.

Floodlights and spotlights were concealed in the shrubbery. Colored lamps and lanterns were hung throughout the hotel grounds. The swimming pool was illuminated with two neon tubes along the edges, producing a blue light similar to moonlight. At the head of the swimming pool and reflected in it was the "Claudescope," a new neon sign involving motion and color change.

The lighting of the grounds was commented upon favorably by practically everyone attending the convention. It was pointed out that such outdoor decorative lighting offers a fertile field for power company lighting salesmen in the future.

Entertainment Plentiful and Varied

Varied and interesting was the entertainment provided for the convention delegates under the direction of S. E. Gates, manager, General Electric Company, Los Angeles, and chairman of the entertainment committee. The entertainment program opened Tuesday evening with the president's reception and formal ball, including several incidental entertainment features. Wednesday evening was devoted to a Carnival of Venice under the direction of C. H. Thrane, Pacific States Electric Company, Los Angeles. This carnival included side shows with the usual circus features, a casino in which the delegates gambled with paper script, a dance hall, and the awarding of several door prizes.

The convention concluded Friday night with a "speechless" banquet which took the form of a dinner dance. This entertainment was entitled "The Night Club," and was under the direction of E. P. Markee, of the National Lamp Works, Los Angeles. The entertainment for this program consisted of 24 numbers, including a double male quartette, the Kosloff Dancers, vocal solos, ballet numbers, a monologue and comedy acrobats.

The Engineering Section session also was entertained by a singer accompanying himself with an accordian.

Entertainment for the ladies included a trip up Mt. Lowe, a demonstration in archery, a luncheon in honor of Mrs. W. L. Frost, a swimming party, sight-seeing trips about Pasadena and a bridge tea at the Flintridge Country Club on the afternoon of the golf tournament.

Theme of Convention Is Need for Better Public Understanding

THAT the creation of a better public understanding of the social and economic phases of the utility business is the pressing problem confronting the light and power companies of the country today was the message driven home to the 350 men and women attending the twenty-first annual convention of the Northwest Electric Light & Power Association held at the Multnomah Hotel, Portland, June 19-23, 1928. More than one speaker pointed out by implication that much of the force of the unreasonable and malicious attacks that have resulted from the testimony adduced at the Federal Trade Commission hearings would be wasted if the industry had completely sold the public upon the importance, intricacies and complexities of the electrical business.

R. M. BOYKIN
manager, central district, Puget Sound Power & Light Company, Seattle, newly elected president of Northwest Electric Light and Power Association.

From the welcoming address of Mayor Baker of Portland to the closing remarks of R. M. Boykin, the president-elect, the convention program was replete with papers and addresses that stressed the importance of such subjects as rural electrification, public relations, load building, trade relations, regulation, finance and engineering. Not only did leading executives of the utilities themselves and the National and Northwest associations offer counsel and advice but leading educators of the Northwest and others brought valuable messages to the delegates.

The program followed the unique plan adopted last year of holding only morning sessions with the afternoon left for informal conferences and entertainment. After the first general session one meeting was turned over to each of the various sections for the presentation of the noteworthy phases of its particular field. Outstanding on the opening day's program were timely words of wisdom offered by Franklin T. Griffith, president of the Portland Electric Power Company and sage counselor of the industry for many years. Vying with Mr. Griffith's admonitions was the defense of the progress and development of the industry under private initiative presented by Preston S. Arkwright, president-elect of the National Electric Light Association. Then there was the summary of the affairs of the association during the past year and the brief resume of conditions in the Northwest geographic division given by President A. C. McMicken.

Load-building and commercial problems received the attention of speakers at the second session. J. C. Plankinton, Commercial Section chairman, reviewed the reports of the various committees. An appeal for closer teamwork as a solution to the industry's selling problem was made by C. E. Greenwood, commercial director of the N.E.L.A. Future possibilities of rural electrification in all of its various phases were discussed by Professor James T. Jardine of Oregon Agricultural College. Miss Eloise Davison, home economics advisor of the N.E.L.A., described the industry's duty to the home makers of America. Merchandising problems as they have been affected by changed methods of distribution formed the basis for an address by Frank A. Fall, director of education and research, National Association of Credit Men. State regulation of utilities was defended by J. M. Thompson of the Idaho Public Utilities Commission.

Engineering and accounting shared the third program. O. L. LeFever, chairman of the Engineering Section, in his report made a plea for a high tension laboratory in the Northwest. John B. Fisken emphasized the importance of proper accident prevention programs. L. A. McArthur, vice-president and general manager, Pacific Power & Light Company, told of his recent observations of electrical development in Great Britain. A broadened and extended scope of the work of the utilities' accountants was recommended by F. W. Brownell, chairman of the accounting section. A glowing tribute to the accountants was paid by Mr. Arkwright in commenting upon their necessity to the success of the utility business. Professor Carl S. Dakan of the University of Washington discussed financing and financial statements.

Perhaps the most outstanding part of the entire program was the Public Relations Section program under the direction of George L. Myers on the final day of the convention. Two three-minute speaking contests were held, the first on the subject of "The Public Utility's Place in the Community" open only to district managers and the second, on the subject "Government in Business," open to the rank and file of employees. Winners also were presented and the winning essays read in three essay contests.

In the pages that follow will be found a condensed discussion of each feature of the convention.

"Theme of Convention Is Need for Better Public Understanding"

Griffith Resents Attack on Industry

Characterizing the present attacks to which the electrical industry is being subjected as unwarranted, Franklin T. Griffith, president, Portland Electric Power Company, and past-president, National Electric Light Association, declared at the first general session, Tuesday, that these attacks are founded upon ignorance or lack of knowledge rather than upon malice. In an inspirational message that came in response to the address of welcome of George L. Baker, mayor of Portland, Mr. Griffith urged the industry to redouble its efforts in informing the public of the intricacies and of the service rendered by the electric light and power companies of the country.

Mr. Griffith resented the application of the term "propaganda" to the efforts of the industry to spread the truth regarding its business. He said:

"Is it propaganda, is it vicious, is it reprehensible in any sense that this great industry of ours should seek to help the coming generation to understand what a kilowatt is? What a horsepower is? How water-power is harnessed? The increase in the efficiency of the steam turbine? How lines are built? The reaction of currents when applied to devices for utilization of all of these things? The use and the mechanism of the various appliances we put before the people?

"Is it propaganda or vicious propaganda to try to explain and to explain in such a way that anybody can check the accuracy of the figures used, the cost of the various characters of service we give?

"Is it propaganda to try to make the people understand that we are, as a class, becoming one of the greatest of all industries; that we have invested more money per year in the industry in the building up of it than any other industry in the country; that money is coming from all sections of the country, from the pockets and the savings of all the people, and that we want them to understand that which their money is accomplishing? Is it propaganda to say that we are one of the foremost supporters of public agencies through tax paying?

"If there was any attempt on the part of the utilities, alone or banded together, to create a false impression, based upon a false premise, to create a structure based upon falsehood and misrepresentation, then we ought to be the object of scorn and criticism by all well-meaning people. But we should not be held up as examples of vicious propaganda when our whole effort is simply to spread the truth."

Mr. Griffith declared that there has been a selfish purpose behind all of the efforts of the industry to spread its message before the public. He pointed out that continued growth of the industry depends upon the inflow of new capital and that this capital would not be forthcoming unless the industry as a whole deserved it. He stated that the public could not be expected to furnish this capital unless it knew the kind of business the industry is conducting, how it is conducting it and what the money is to be used for.

In concluding, Mr. Griffith sounded a word of warning to the men and women engaged in the electric light and power business. He said:

"Don't be ashamed of your business, don't apologize for being a public service man or woman. Don't let those who are ignorant of the facts confuse you, but know yourself. To be a good public servant, to be a good cog in this great wheel of public service that we are all turning, you must yourself be equipped with the knowledge that we want the general public to have. Don't believe that you can rise in the ranks of this great industry unless you equip yourself with that fundamental knowledge that is absolutely essential to success, and remember that to be a part of this great movement to acquaint the general public with the facts and details of our business, we must ourselves know whereof we speak when we attempt to tell others."

A. C. McMicken, whose energetic year as president was brought to a close in the successful convention.

McMicken Reviews Work of Past Year

Rural electrification, public relations, and the Federal Trade Commission's investigation were among the subjects discussed by A. C. McMicken, president of the association, at the general session Tuesday, when he presented his annual report in which he reviewed the activities of the organization during the past year. Mr. McMicken declared that much is yet to be done in the field of rural electrification. He urged that electric light and power companies continue to support state committees on the relation of electricity to agriculture to the fullest possible extent. He said:

"The application of electricity to field farm power is yet largely in the experimental stage and although great progress has been made, the proved applications outside of the farm home are yet minor power applications rather than major power applications. Agriculture needs electric power today as badly as industry needed it 20 or 25 years ago, and the successful application of power to agriculture will be one of the principal factors involving agriculture's problem of production at low cost."

Regarding the Federal Trade Commission's investigation, President McMicken stated:

"We are accused of many things—in particular our efforts to acquaint the rising generation with the complexities and problems of this fast growing industry, and our opposition to government ownership and operation of public utilities seem to be the focal points. We believe that our educational institutions are run to fit the rising generation to take its proper place in the business world as it is today and that there should be opportunity for these students to obtain facts and knowledge concerning our industry and to fit themselves to enter this field should they elect to do so. May I state that the pamphlets furnished educational institutions contain facts, not propaganda, and have only been used in institutions of learning after careful study by educators and upon request from them. The only regret we should have is that so little has been done to acquaint the youth of the country, and their elders as well, with the real facts of our industry.

"A certain element in the press has made much of the efforts of certain power companies and also of the N.E.L.A. to keep a vigilant eye upon legislation in order to prevent legislation detrimental to their interest. Just why we should be held up to public scorn because we act in self-defense is difficult to understand. Quite naturally we are opposed to government ownership and operation of utilities believing as we do that this government was founded, at least in part, to encourage private initiative and that it was not the intention of its founders to have the government assume a paternalistic attitude toward business.

"Our state utility information bureaus are also severly criticised by a certain element in the news press because they have tried to have the press of the country keep its readers informed of the progress and advancement of our industry. I am in accord with one of our leading electrical journals which says, 'It would appear that the power companies are guilty of self-defense, of a desire to serve the public to the best of their ability and opposition to government ownership. Just what other result can come from the present investigation it is difficult to see.' "

In reviewing the progress of the association for the past year, President McMicken complimented all of the committees on their excellent work.

"Theme of Convention Is Need for Better Public Understanding"

Arkwright Decries Activities of Government Ownership Advocates

DECLARING that just as the great Northwest country was settled and developed by a race of self-helping men, actuated by the spirit of individual enterprise, so has the electrical industry developed under the same urge of individual initiative and the same spirit of political philosophy, Preston S. Arkwright, president-elect of the National Electric Light Association, delivered one of the outstanding addresses of the convention, at the first general session Tuesday. In commenting upon the growth of the industry in the United States, Mr. Arkwright pointed out that the low price and wide service have not been made possible by government, by socialism, nor by societies for the advancement of human welfare, but by sound business enterprise.

Water power development, long distance transmission, interconnection and rural electrification are all products of the industry's initiative, President-elect Arkwright declared. He stated that the growth and development of large interconnected systems have made available a continuous, adequate and economical electric service to all consumers alike, whether they reside on farm or in hamlet or in the largest cities of the country. He pointed out that any attempt to remove a city from one of these interconnected systems would be to take away the advantages now enjoyed by all and place the consumer in the hamlet or on the farm at a distinct disadvantage. Mr. Arkwright stated that with the electrical development of the country in private hands a large proportion of state, county, municipal and federal taxes are paid by it. He declared that the electric light and power industry pays a larger proportion of taxes per dollar of gross revenue than any other single industry or enterprise of its size in the United States. Its average payment of taxes of all kinds, amounting to $9.08 per $100 of gross revenue, is larger than the taxes of the steam railroads, the telephone industry, the street railways, the gas industry or any other major industry in the country. He stated that this money is used to support the state in all its activities and is not for the cities alone.

Discussing federal ownership and operation of the electric light and power utilities, Mr. Arkwright pointed out that the major activity is directed primarily and most vigorously only in those sections where development of the electrical industry has been greatest. He said:

"California stands first in water power development in all the United States and in low rates, and in the extent to which service is available; and Boulder Dam is aimed at that state. And in Boulder Dam they would sacrifice the Imperial Valley flood protection and irrigation, before they would forego a development primarily designed to produce power to go into the territory of California largely where service is full and service is cheap and development is great."

He pointed out that the Northwest has the Columbia Basin project, that New York State has the St. Lawrence water power development and finally that the Southeast has Muscle Shoals. He stated that all of these sections are among the foremost in the country's electrical development. In discussing the Muscle Shoals bill, Mr. Arkwright pointed out that Congress removed from the bill those terms that adversely affected the so-called fertilizer "trust" and substituted in their place terms that did more harm to the electric light and power companies.

Mr. Arkwright criticised the activity of the government ownership advocates when he said, "These people advocate their cause not by promoting the benefits of government ownership, but by attacking the privately owned company to bring it into disrepute, to teach people to hate it, to arouse their antagonism against it, to overcome their sense of fairness so that they would be willing to steal it. In the picture to be painted the entire industry is sunk to the level of its worst member. Its

National President P. S. Arkwright, whose brilliant address stirred the convention upon the subject of unjust criticism and attack.

constructive work in the upbuilding of its community is buried in the trivialities of foolish letter writing."

Combating the "free" power argument of the government ownership advocates Mr. Arkwright said:

"They say the rain on the watershed costs nothing. That is right. So do the berries on the briar, and the fish in the sea, and the water in the well, and the wild animal in the forest. But what about the jam in the pantry, and the trout on the breakfast table, and the bath in the tub, and the fur coat that is upon milady's shoulders? There is something in between that costs money to convert these things to man's use. So it is with power development. Intervening between the drop of water on the watershed and the lamp in the library corner, are the investment of millions and hundreds of millions of dollars in lands and water-rights, dams and power houses, transmission lines, substations and distribution systems."

In concluding, Mr. Arkwright declared that the industry owes a duty to the public to see that it understands the intricacies of electrical business. He pointed out that without this understanding the industry cannot expand to meet the growing demand to give cheaper and better service to the public at large. He stated that no one can or will do this job of telling the public but the electric light and power companies themselves.

Commercial Activities of Past Year Reviewed

A review of commercial activities during the past year as contained in the section's published reports and suggestions for intensive load-building operations of member companies in the coming year was contained in the report of the chairman of the Commercial Section, J. C. Plankinton, Northwestern Electric Company, Portland. He appraised the value to all concerned of the annual midwinter conferences held in the section the past three years, recommending their continuance and urging company executives to take advantage of this value by sending more of their commercial men to them.

Among the load-building operations to which special attention was drawn were electric ranges, water heating, power applications and industrial heating, commercial cooking, street and highway lighting, rural electrification and special Christmas tree and holiday decorative lighting.

Concerning refrigeration he spoke as follows: "Domestic electric refrigeration in most districts has not proved the attractive load that it was first thought to be, due to the fact that in most parts of our territory the refrigeration season, or that portion of the year that customers have been accustomed to using refrigeration, is so short that the widespread application of domestic refrigeration calls for an educational program to put over the idea of year-round refrigeration. Some good work has been done along this line in some cities through the co-operative effort of all branches of the refrigeration industry, such as ice manufacturers, ice box makers, mechanical refrigerator sales organizations, and others. There seems to be a tendency on the part of central stations to sponsor electric refrigeration and to co-operate in every way with other dealers who are selling electric refrigerators but not to push the sale of these devices aggressively themselves."

Referring to the two schools for rural

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service men held in the territory with the co-operation of the Rural Electric Service Committee and the Oregon C.R.E.A., he said, "Personally I am convinced that the work being done by the Committees on the Relation of Electricity to Agriculture is attacking the problem in the right way. However, if the information gathered by these committees is not passed on to the farmer, it is of little use. These schools for rural service men constitute probably the quickest and surest way of accomplishing this."

Greenwood Declares Team Play Will Solve Sales Problems

COMMERCIAL progress through team play was the subject of an address by C. E. Greenwood, new commercial director, N.E.L.A., New York, at the session Wednesday. "The team play we adopt in our industry will not be interpreted as between our industry groups only, but between our industry and other groups," said he. "It is scientific team play that has built other industries in this country and it will build ours." He cited some of the results of national advertising done in recent years in other industries, and told of the plan adopted by the recent industry sales conferences of the groups in the electrical industry to undertake a national campaign co-ordinated through the N.E.L.A.

He declared that the first step in this campaign is research—to study the consumer psychology and consumer reaction to the uses of electricity; the second is the formulation of a selling plan; and the third is the appeal to be made in advertising. The first step has been undertaken by the J. Walter Thompson Company, a national advertising agency. "The findings of this survey will be interpreted in broad merchandising experiences and outside viewpoint," said Mr. Greenwood. "The selling program will be in two parts—one to give national background to advertising and publicity, the other a localized selling plan suited to successful promotion in your community or any other."

Referring to the many complaints against selling policies of the central station industry, as expressed through trade associations and the trade press of the department store, hardware store, retail drygoods and other industries, he told of the formulation of a declaration of principles by the industry sales conferences, reciting these principles as follows:

"1. All discussions of the problems of the relations of power companies and dealers selling electrical appliances must be based upon proper and adequate service to the ultimate consumer.

"2. There should be a segregation of the accounting and marchandising departments of power companies from their public utility functions, and all items of expense incurred in the merchandising of appliances should be charged to the merchandising activities.

"3. It is recognized, however, that expenses incurred in the pioneering of appliances which have not yet met with sufficient public acceptance to be merchandise items in the stocks of local progressive dealers, and general advertising for the development of the market for appliance service, should be charged to the promotion accounts of the power companies and not charged to merchandising.

"4. This conference recommends to power companies and independent dealers the necessity of constructive co-operation in their local fields for the better development of the electrical appliance business."

These principles were endorsed by six associations as follows: National Retail Drygoods, National Retail Hardware, National Hardware, Hardware Jobbers, National Druggists, and the Association of Electragists, International. Five supplemental principles based on the above were subsequently adopted by the General Merchandising Committee, N.E.L.A., as follows:

"1. The general sale of electric devices at margins commensurate with the cost of selling is the only sound merchandise practice, and is conducive to constructive building in the appliance merchandising field.

Pointing to a new economic phase of industry selling, C. E. Greenwood, N.E.L.A. Commercial Director, enunciated merchandising principles.

"2. When combination sales are advisable, adequate margins should govern selling prices. Only the 'true value' of articles should be stated in the advertising.

"3. Deferred payments in connection with the sale of all merchandise is universal practice and is accepted by sound financial authority and favored by the public. A period not exceeding eighteen months is recommended as maximum time allowance for load-building devices in the pioneering stage, and a period not exceeding fifteen months for financing motor-driven devices having general public acceptance. Relatively shorter terms, on a self-supporting basis, should be extended on items selling for less than $25. A carrying charge for financing service should be made in all cases, and an initial payment be required large enough to constitute a sale.

"4. The power company is in the merchandising business for the promotion of devices which constitute a medium of electric service. There are kindred lines to merchandise, which are naturally used in conjunction with the appliances, but we suggest it is not desirable for the merchandising department of the power company to engage generally in the sale of non-electric devices.

"5. We recommend an adequate classification of merchandising accounts by our association."

Sees Great Future for Rural Development

Past progress, and recognition achieved to date, assure rural electrification of great future development, in the opinion of Prof. James T. Jardine of Oregon State Agricultural College, chairman of the Oregon Committee on the Relation of Electricity to Agriculture, who addressed the general session of the convention Wednesday morning. Professor Jardine declared that the program of investigation to get facts as to possible and economic uses of electricity in agriculture undertaken three years ago has been productive even beyond expectation. He stated that equally significant is the progress already recorded in the way of establishing rural service units as a part of the organization of electric light and power companies and the schools for rural service employees, aimed to assist these men in their important work of helping the farmer to put into practice such proved facts as are developed by investigation.

With agriculture the biggest and most fundamental business in the United States today, Professor Jardine advanced the opinion that ultimately the farm and rural demand for electricity might become larger than the present urban demand. He pointed out that the definite trend in agriculture today is toward industrialization. He declared that there is opportunity for agriculture to profit by the experience of business and to relieve the present situation by more efficient production and greater output per individual worker. He said, "Past experience in agriculture, together with the experience in industries, points to power and machinery with its consequent increased production per worker as the prime

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factor in the future of American agriculture." He cited reports to show that over 100 applications in which electricity is actually in operation on American farms have been recorded. He stated that in Germany more than 90 per cent of the farmers, whose farms are in an electrified area, use electricity with a total annual consumption per individual employed in agricultural pursuit as high as 50 kw.-hr. He also stated that in Germany electric plows are reported to be on a sound commercial basis in many districts.

Among the suggestions that might speed the future rural electrification, Professor Jardine offered the following:

"Of first importance is a constant realization on the part of all concerned that agriculture is a great, complex industry with its many and varied individual problems. Not only the farmer, but the research man, the extension service man, the rural service man, and the manufacturer should have at least a general understanding of agriculture and its problems. Attempts to apply equipment, uses and sales methods, customary in other industries, without adjustment to conditions in the agricultural industry may cause hardship and retard progress.

"If a substantial use of electricity is to be developed the mere coupling of an electric motor to farm equipment is not a solution to the problem; finding that a machine will do a certain job well is not a solution, even of the individual problem; the power consumption of a machine and the cost of operating the machine successfully is not a solution to the problem; certainly, the grasping of a few facts and with these as a basis, rushing line extensions and sales is not a solution. Ultimately a solution must work to the advantage of the individual farmer and the agencies furnishing equipment and electricity.

"For the protection of all concerned against unwise investments, the wise policy will be to consider farming somewhat as a manufacturing business, and have the salesman learn as much as practicable of the farming business to which he will assist in applying electricity when there is a reasonable probability that the equipment and electricity will reduce cost of production below cost without it, will improve quality of product or release labor to be more profitably employed in other enterprises."

Professor Jardine stated that as a general rule farming equipment has not been developed with a view to electric drive and that the problem of developing most suitable equipment will for some time warrant co-operation of field and laboratory research with manufacturing skill. He pointed out that there will continue to be opportunity and need for investigation to work out new uses and their adaptation in combination to build up an economic load for the utility. He declared that proper personnel and organization will be required for putting electricity to work on the farms of America. He made the appeal that the connecting link between the fact-finding agencies for agriculture, the manufacturers of equipment and the electric light and power companies on the one hand, and the farmer with his manufacturing plant on the other hand, be a salesman with special training capable of giving the farmer real assistance. In conclusion he stated that the colleges and universities of the country should stand ready to be of every possible service to the electrical industry in this work.

Bringing the entire Northwest within "range" are Ray Turnbull, Edison Electric Appliance Company, and George Bailey, Westinghouse.

Outlines Industry's Duty to Home-Makers

Discussing twentieth century home making, and the co-operation rendered to inquiring home-makers by her department in the national association, Eloise Davison, home economics advisor, N.E.L.A., New York, touched on the following subjects: buying standards for household electrical equipment, rural electrification, household equipment laboratory installation, short courses for women in the electrical industry, and special research problems.

Referring to buying standards, she said, "Too often the home-maker is postponing her purchase of electrical equipment until she can afford to buy the most expensive, most exclusive models complete in all their refinements. This is as inconsistent as it would be to walk because one wants a Cadillac when all one can and should afford is a La Salle. Such an analysis made in the light of real values might mean that, given $200 to invest, the best selection might be a $135 range and a $65 vacuum cleaner, rather than a $200 range." Decrying the tendency to buy on appearance only, she stated that the industry should assist in setting up good buying standards by pointing out definitely "that equipment may be too cheap to be a good investment."

Telling of the assistance lent by her department in the establishment of six new household equipment laboratories in colleges, she said, "These laboratories will be used by students to study questions of selection, operation and care of household equipment. They will also be used by advance or graduate students in connection with their special research work."

Referring to the training of women of the industry for home economics work, she told of the establishment at Iowa State College and at Oklahoma Arts and Mechanics College, at the request of these institutions, of short courses for utility women. "The dearth of people with sound scientific training in this field limits the personnel of some home economics departments at the present time," she said, and suggested that a further establishment of such courses would prove valuable.

Merchandising Principles Are Discussed

Under the subject, "The New Day in Merchandising," Dr. Frank A. Fall, director of education and research, National Association of Credit Men, New York, referred to our changed methods of distribution and touched on some of the problems raised at Wednesday morning's session. "The economies achieved by mass production have not been matched by economies in mass distribution," he said. "One important reason for this is our deplorable lack of exact information on marketing. The government has provided a census of manufactures, so that we know just what we make, and where it is made, and in what quantities. But we have no census of distribution. In many leading lines of business we have no idea whatever of how many retail outlets exist, or where they are located."

Discussing some of the problems of the new order in which credit men are interested he cited that, contrary to some opinion, credit men are not opposed to installment selling, but only "to the abuse of it, to the undue extension of it, and to the application of the deferred payment principle to goods that are so perishable that they are used up or worn out before the payments are completed." He decried the abuse of the cash discount privelege, quoting a principle recently adopted by his association: "The joke is not entirely on the seller. By winking at this unfair and unethical practice the seller goes far toward making the buyer dishonest. The buyer might just as reasonably go into the seller's store or warehouse and steal his merchandise as to deduct a discount to which he is not entitled under the stipulated terms of sale."

Further, censuring the "tendency to sell terms instead of goods and services," an additional principle of his

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association states that, "Competition in certain lines appears to have resolved itself into a free-for-all fight, with the prize going to the concern which will wait longest for its money. Some observers are disposed to lay the blame for this at the door of the recent phenomenal expansion of installment selling. It is, however, more reasonable to suppose that it is due rather to the wild scramble for volume in which the basic purpose of business—the making of profits—has almost disappeared from the picture."

Federal Regulation Held to Be Undesirable

Making a plea for a continuance of the present system of regulating electric utility companies by state commissions, J. M. Thompson, Public Utilities Commission of Idaho, Boise, entered into a discussion of some of the legal and ethical questions involved in respect to that energy transmitted across state lines at Wednesday morning's session. His argument tended to controvert the contention of those who believe that such energy is a commodity in interstate commerce and hence beyond the jurisdiction of the states, and of those who for this reason would throw regulation of such utility companies into a bureau of the federal government.

He cited for illustration such energy as that generated in Idaho by the Idaho Power Company and transmitted into Utah onto the lines of the Utah Power & Light Company. The removal from the rate base of the Idaho company of that portion of its Idaho property used for such transmission constitutes the exercise by the Idaho commission of jurisdiction over that energy in so far as the Idaho users are concerned, Mr. Thompson held. Following the course of the block of energy into the distribution systems of the Utah company, he showed how that current became so commingled with the other energy on those systems, most of which is generated in Utah, as to become inseperable therefrom, before it could serve any useful service. Therefore, inasmuch as the Utah commission exercises jurisdiction over all the energy supplying Utah users, he showed that at no time was the block of imported energy outside of the jurisdiction of some regulatory body.

Expressing the hope that Congress would not accede to the demands of some to create a federal commission to regulate such transactions, since this would seriously limit one important phase of state regulation, he said: "It is one of the underlying principles of a representative government that disputes pertaining to local matters should be settled by a local tribunal. The reason for such is obvious. To interpret the facts in evidence in any proceeding requires a general knowledge of conditions in the field of operation and in the territory served. To enable one to visualize with any degree of accuracy the condition, or conditions, sought to be presented by the facts adduced at the hearing, such knowledge is indispensable. The local needs are best known to the state commissions. No central authority acting for the nation as a whole will readily discern them."

High Tension Laboratory Needed in Northwest

Except for calling attention to the proceedings of the fifth annual general meeting of the Engineering Section at Spokane in March, 1928, which, just published, contain the work of the nine

As a host of visiting golfers and other delegates Earl Whitney, General Electric manager, was always active.

standing committees of the section, no reference was made to the Engineering Section reports by O. L. LeFever, Northwestern Electric Company, Portland, in his report as section chairman. Instead he told of other activities of the section as carried on largely by the executive committee. The need of a high-tension testing laboratory in the territory, and the desirability of securing the adoption of the National Safety Code as standard for the State of Washington were suggested.

He told of a study of noise on telephone systems caused by common neutral, as conducted in Minneapolis, which determined that such noise could be eliminated by grounding of cable sheaths at both ends and installing some high impedance ringers. A further study is to be made in California of the costs involved so as to bring about proper co-ordination in such cases.

Discussing a recent development in meter practice, he said: "In the past the 5-amp. meter was used for residences without electric ranges. On account of the increased use of electrical household equipment, many of the 5-amp. meters were subjected to heavy overloads. As a result it became quite common practice to abandon the 5-amp. meter and standardize on the 10-amp. for residence use. Recently a new 5-amp. meter has been developed to withstand the same overload as the old 10-amp. type, and still maintain accuracy on high loads and much better accuracy on low loads. This resulted in most companies again using the 5-amp. meter for ordinary residence loads. In the past most companies have used a 15-amp. meter for range services. A new 10-amp. meter has been developed which is the equal of the old 15-amp. one and may now be used in its place."

Accident Prevention Is Highly Essential

A history of accident prevention work in industry in the United States, the lack of progress recorded in this work in the electrical industry, the essentials of a safety program, and an analysis of accident cost were the subjects under which J. B. Fisken, The Washington Water Power Company, Spokane, presented the subject of "Accident Prevention." He closed with the statement that, "Every executive owes it as a duty to do all in his power to assist in accident prevention work. He owes it as a duty to his employees and their dependent families from a humanitarian standpoint, and, if this has no appeal, he owes it as a duty to his stockholders from an economic standpoint."

Discussing the subject historically, he said, "From an investment, in a little over ten years, of $9,763,063, which the United States Steel Corporation expended for accident prevention, it received a return, in a saving of expense, estimated at $14,609,920," and, quoting from the report of the National Accident Prevention Committee, "In spite of the fact that they (the U. S. Steel Corporation) have employees of a lower standard of intelligence than ours, and conduct an industry which is more hazardous than ours, they have set up accident records that are very unfavorable to our industry. The answer to the question 'Why?' appears to be 'organization.'"

Further discussing the economics of the subject he showed that the total accident cost was made up of direct charges such as payments made to state employees' compensation funds, to casualty insurance companies, to injured employees or to a bonding company, and the hidden charges in lost time of other employees, impaired morale, and many others. He said, "Recently the engineering department of the Travelers Insurance Company, Hartford, Conn., made an analysis of 5,000 specific accident reports drawn at random from the claim files of the company, and found that the hidden cost, which is uninsurable and must come out of the pocket of the employer, was at least four times the cost of compensation and medical attention."

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Program Recommended for Accountants

A broadened and extended scope of activity for the Accounting Section was recommended in the report of the section chairman, F. W. Brownell, Puget Sound Power & Light Company, Seattle, who stated that this was necessary to bring the activities of the section into harmony with present needs. Besides co-operating with the Accounting National Section in carrying forward its program, the report recommended that the section be made to act as a service organization for the Northwest association and its member companies, by:

"(a) Making scientific study and research from a financial and accounting management standpoint of internal utility problems common to all member companies, and rendering reports thereon to the Executive Committee of the association.

"(b) Making scientific study and research of, and gathering data and facts pertaining to general problems common to the utility business, of national, sectional, inter-state and state scope, and rendering reports thereon to the executive committee of the association.

"(c) Serving the executive committee and sectional committees of the association as requested in securing and compiling information and data for use by those committees in conducting their work."

Additional committees would be required for carrying out this program, he stated, and the report outlined a suggested organization to meet the needs of the above recommendations, with also a suggested plan of committee work. Several subjects, falling into classifications (a) and (b) above, were suggested for study if and when the association executive committee should deem it necessary.

Attention was also called in the report to the study of taxation made the past year by a special research committee, which had been found valuable by member company executives, and also to the several reports of the standing committees of the section as already published in Electrical West.

Electrical Development in England Described

With in interesting array of fact and opinion, L. A. McArthur, Pacific Power & Light Company, Portland, told of some of the problems of and trends in the electrical industry in Great Britain, whence he had recently returned from a six-weeks visit. Some of the high lights of his remarks follow.

"About 11,000,000,000 kw.-hr. are generated in Great Britain annually, largely by steam plants, with very little transmission because these plants are located close to the point of use. About half of the total generation is by industries that use the energy. The other half is generated by about 600 companies, or 'undertakinngs,' as they are called, one-third of which are politically owned. Only three undertakings produced over 200,000,000 kw.-hr. last year so that it can be seen that most of them are small.

"There is a wide variation in current characteristics in London, as has oft been reported in this country, but in my opinion this works less hardship on the people than we have been led to believe, because people don't move so frequently over there. One American manufacturer keeps in stock in London 25 varieties of washing machine motors.

"There is a movement on foot within the government to effect standardization. There is no great urge toward government operation, but rather the trend is away from it. This is largely due to the inadequacy of the telephone service under government ownership. The people have begun to see that if they are to expect any material development in the electrical industry it will have to come through private initiative.

"Only about 60 per cent of the country has electric service. This is partly due to the highly developed gas industry which has made an eminent success.

"Most housewives want electric service. There is a large public demand for it and a large market for electric household devices. The 'undertakings' are not in the merchandising business.

Advocate of high tension for the Northwest was O. L. LeFever, chairman of the Engineering Section.

"The problem of wiring old houses is a very considerable one because of their age and type of construction. A great deal of stone is used, and the expense of concealed wiring in such buildings is enormous. There is, consequently, a great deal of exposed wiring in conduit and lead-covered cable.

"The cost of energy is not high when compared to costs in this country, except that, with the lower standards of living in England, 10-cent energy looks higher than it does in this country."

Urges Standard Financial Statements for Utilities

A uniform system of financial statements plus educational efforts to assist the people who buy preferred stocks to understand what the statements mean, are two of the most pressing problems confronting the accountants of the electric light and power companies of the country today, in the opinion of Prof. Carl F. Dakan of the University of Washington, who spoke on the subject "What the Investor Looks for in Public Utility Reports" at the general session Thursday morning. In his address Professor Dakan answered the following three questions:

(1) Are customer owners sufficiently well informed of the utility's financial status and operation to assume their just burden and share of the investment risk?

(2) Has the industry, in its customer ownership development, assumed the responsibility of informing the investor?

(3) Do the published statements of the utility companies adequately inform the investor?

In appealing for a standardized form of financial statement, Professor Dakan pointed out that the placing of the bonds of the electric light and power companies on the legal list for savings banks in the United States will require a type of standardized statement that will permit a more critical and comparative analysis on the part of the so-called institutional bond buyers. He stated that standardization is also to be desired because the customer owner of today represents a class of the public that has become investment conscious and one who is in the market for sound securities in many industrial organizations. He said that it will be to the interest of the utility in which this man is a customer owner to present a report that will be comparable with that of any other industrial organization in the country.

Professor Dakan urged that the industry take steps to inform the customer owner regarding the degree of risk that he assumes when he makes a commitment of funds in a particular company. He said:

"People to whom you are selling your preferred stock do not understand the measure of the different degrees of risk assumed by the different investors, beginning with the highest grade first mortgage bonds, down through those that are less secured, debentures, preferred stock, common stock, and so on. Now, if you are going to invite those people to invest in your company, you must educate them as to the stage in the risk-assuming function that they are invited to step into. You must teach them the difference between the yield of 6 per cent or 5½ per cent on

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your preferred stock and 4½ per cent which you pay for your first mortgage bonds. They do not understand that. They very frequently assume that the securities they are buying are of just exactly the same quality as any other security you may issue."

He declared that if the utilities are going to build up good-will through customer ownership they must not sell but they must have the people come to them to invest and invest in the sense that the public is knowing what it is getting. Prof. Dakan urged that the first item on the balance sheet should be the plant and property account and that it ought to include exactly the same property upon which the local regulating body entitles the utility to earn a reasonable return. He pointed out that if this were done, considerable explanation would be saved before regulating bodies when rate adjustments were under discussion and before the investing public when return on the investment was being explained. He also urged a more complete explanation of the item "depreciation reserve." In concluding, Professor Dakan said:

"The most important function the light and power companies are performing is the directing of funds of the people of modest means and of no technical knowledge of investing into an industry that might be known as fundamental. This is being done with an obviously selfish purpose. It is being done with the idea of building up good-will and of getting capital cheaper. If the utilities are going to combine those two things, they have an educational program ahead of them which they cannot shift and which they cannot neglect."

Arkwright Praises Work of Accountants

Asked to comment on the Accounting Section and on accounting departments of companies, P. S. Arkwright, president-elect, N.E.L.A., paid a glowing tribute to the necessity for accounting departments, and to the high degree of integrity of the accounting profession generally. Pointing out that all other departments are dependent on facts kept and furnished by the accountants in shaping policies and making executive decisions, he stated that the accounting department was the only department of the business with which the industry could not dispense. "Our determination of rates, and the approval of those rates by commissions, as well as the judgment of the manager on every matter of policy coming before him, must be based on what the accountant can tell us about the status of our business," he said.

Answering the question, "What is the true objective of our business?" by saying that it was to get enough net earnings so that new capital would be attracted to keep up with growth and to make possible the use of more modern equipment, which in itself would reflect itself in net earnings, he said that the accountant was the only man in the organization who could tell when net earnings were satisfactory and when they were not. "He is the man behind all the multitude of facts required by the many agencies both within and without the industry, and although his work is seldom spectacular, he is none the less the most important man in our organizations."

P.C.E.A. Prize-Winning Film Is Shown

Through the courtesy of the Pacific Coast Electrical Association transmitted by G. C. Tenney, Electrical West, San Francisco, a motion picture illustrating the power of advertising was shown during the engineering session in place of an address by W. H. Onken, Jr., Electrical World, who was unable to fill an engagement to address the convention. This picture was the contribution of the Advertising-Publicity Section of the P.C.E.A. in a contest devoted to determining which section could do the most toward load building, and had won the first prize in that contest at the recent P.C.E.A. convention in Pasadena. The continuity of the picture had been written by Al. C. Joy, San Joaquin Light & Power Corporation, and it was acted and filmed by employees of that company. Its message was vivid and unmistakable.

Public Relations Improved Through Contests

Reporting for the Public Relations Section, Geo. L. Myers, Pacific Power & Light Company, Portland, chairman, stated that the year's work had largely been devoted to sponsoring by different committees three essay contests and two public speaking contests. In public speaking, elimination contests had been conducted in individual companies and the company winners would compete for the prize of $75 offered by the section later in the session. The entries in the three essay contests had already been judged and the winners picked, and as a further part of the Public Relations Section program, these winners would present their winning essays. Mr. Myers commented on the section's program in the following language:

"The program was predicated upon the theory that the time had arrived for the secton to give practical consideration to featuring employees by member companies, preferably by an elimination process through competitive effort. The employee is the principal point of contact between the utility and its customers. The esteem in which the utility is held is measured by the ability and conduct of the employee in the contact made with the customer in providing service, and in the contacts of all employees in their relations with the public in social, civic, commercial, fraternal and educational affairs. It was felt these competitive contests would serve to create greater interest in and provide a better understanding of the vital importance of the employees' part in our public relations, and likewise give recognition to and afford an opportunity to evidence the employee's appreciation of his or her importance."

Referring to the charges made against the industry generally with respect to its relations with colleges, and in speaking of the activities of his committee on co-operation with educational institutions in this division, Mr. Myers said, "The industry has nothing to retract nor any apology to make for anv of its relations. There has been no effort to subsidize or propagandize these institutions so as to influence the faculties or student bodies in their attitude politically toward the industry. All material of an informative nature that has gone into these institutions has been a candid and open presentation of irrefutable facts pertaining to the technique and economics of the industry and its relations with governmental bodies."

He reviewed the work of other committees of the secton and made recommendations for minor changes in organization of the section among which was the splitting of the public information committee into two committees, one on public speaking and one on advertising and publicity.

Customer-Ownership Subject of Essay Contest

The customer-ownership committee, headed by Dwight Ware, Puget Sound Power & Light Securities Company, Seattle, conducted an essay contest on "Why Our Customers Should Be Our Partners," which was won by Allen F. Elder, The Washington Water Power Company, Spokane. Mr. Elder was unable to be present at the convention but his essay was read by G. B. Foster of that company. The prize was $25. Extracts from Mr. Elder's essay follow:

"The utility which speaks directly to a large percentage of its customers through reports to its stockholders has

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an economical advantage over one which must address its customers and stockholders as separate groups. The former, therefore, has more time, energy and money to apply to its primary function—service to the public.

"When the customer feels that his wishes are paramount in construction of the company policies an altogether different state of mind becomes apparent. He lays his problem before his own technicians with a feeling that they will work for him from two angles—for his own benefit as a customer and as an owner in the business.

"The customer-owner is easier to approach with suggestions for additonal services. He takes an interest in merchandise displayed by the company. Instead of passing by heedlessly, his sense of possession causes him to stop, inquire, and so is planted the seed of thought which is the basis of good advertising.

"Once sold on electrification the customer-owner becomes the utility's best advertisement, extolling the merits of its wares to his friends. Some of them in turn may increase their electrical consumption, and so the movement grows.

"The benefits of customer-ownership are not all felt by the customer and by the utility only. The entire community is aided and improved in many ways. Chief among these is the circulation of wealth within the boudaries of the district served. The company's natural aim is to serve its owners' best interests, and when these interests lie along the path of better service to them as customers, the entire locality prospers."

Two Speaking Contests Arouse Interest

TWO contests in public speaking were conducted on Friday by the public information committee, under the leadership of S. E. Skelley, Pacific Power & Light Company, Portland. Class I contest, open only to district managers, was on the subject, "The Public Utility's Place in the Community." Winners were chosen by the member companies from their own entries and six companies sent winning contestants to the convention to compete for a first prize of $75 and a second of $25, as follows: P. H. Craven, Utah Power & Light Company, Rexburg, Idaho; M. G. Cushing, Puget Sound Power & Light Company, Puyallup, Wash.; C. E. Beckwith, The Washington Water Power Company, Colfax, Wash.; Lee Bennett, Mountain States Power Company, Albany, Ore.; George Hibbert, Pacific Power & Light Company, Toppenish, Wash.; and F. C. Carleton, Northwestern Electric Company, Camas, Wash.

P. H. Craven won first prize, with George Hibbert second.

In Class II, open to the rank and file of employees, the public speaking contest was on the subject, "Government in Business." Eight companies had held individual contests and entered their winners as follows: C. P. Merklin, Northwestern Electric Company, Portland; Chas. J. Knobbe, Pacific Power & Light Company, Astoria, Ore.; Mrs. Mabel Maxwell, Portland Electric Power Company, Portland; W. K. Francis, Utah Power & Light Company, Salt Lake City; H. Deane Miller, Idaho Power Company, Boise; Paul Soper, Puget Sound Power & Light Company, Everett, Wash., LaVerne Hawn, The California Oregon Power Company, Medford, Ore.; and R. D. Williams, The Washington Water Power Company, Spokane.

First prize winner was Mrs. Mabel Maxwell, while H. Deane Miller and R. D. Williams tied for second.

Essay Contest Conducted for Women Employees

"The Woman's Role in Public Relations" was the subject of the essay contest conducted by the women's committee, under the leadership of Mary K. Walsh, The Washington Water Power Company, chairman. This contest was more extensively entered than any of the others and was won by Lula Boyes, Utah Power & Light Company, Salt Lake City. The prize was $25.

Tracing the transition of the economic status of women from the home to business, Miss Boyes' essay analyzed the places in the central station business occupied by women, and showed how their conduct of these positions could influence public relations. Speaking of the telephone operator, she said, "She must patiently answer numerous requests which come in the course of the day. She must be familiar with the work and personnel of each department in order to give information to inquirers who are constantly calling, but who do not know exactly where to obtain the information desired. . . . . Frequently a thoughtful, cheerful operator can turn an irate customer into a reasoning friend of the company."

Stenographers and secretaries can frequently save the time of their chiefs by giving the necessary information satisfactorily to a caller instead of requiring that caller to wait for an interview with the department head. "In every office," she said, "there are many tedious details demanding attention which women can dispose of eminently well because of their patience." Such a case was shown to be the complaint desk, where the qualities of patience and tact are most necessary, if uninformed customers, concerned about some seeming injustice, are to be sent away with a feeling that "the company is reliable, and anxious to please and be of service to the public."

Women in the sales department as saleswomen and demonstrators, as home service advisors and home economists are also in a position through their many contacts with the public to make themselves important factors in their company's public relations program.

A second half of this contest was open to the wives of men employees, and the first prize of $25 in this class was won by Mrs. W. H. McMurray, Yakima, Wash., whose husband is a power salesman for the Pacific Power & Light Company in that city. Mrs.

Contestants in the public speaking contests, from left to right: R. D. Williams, The Washington Water Power Company, Spokane, second prize winner in second class; P. H. Craven, Utah Power & Light Company, Rexburg, Idaho, winner in class 1; M. G. Cushing, Puget Sound Power & Light Company, Puyallup, Wash.; George Hibbert, Pacific Power & Light Company, Toppenish, Wash., winner of second place in class 1; H. Deane Miller, Idaho Power Company, Boise, Idaho, tied for second place in class 2; Mrs. Mabel Maxwell, Portland Electric Power Company, Portland, winner of class 2; W. K. Francis, Utah Power & Light Company, Salt Lake City; C. J. Knobbe, Pacific Power & Light Company, Astoria, Ore.; La Verne Hawn, California Oregon Power Company, Medford; C. P. Merklin, Northwestern Electric Company, Portland; F. C. Carleton, same company, Camas, Wash.; C. E. Beckwith, The Washington Water Power Company, Colfax, Wash.; Paul Soper, Puget Sound Power & Light Company, Everett, Wash.; and Lee Bennett, Mountain States Power Company, Albany, Ore.

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McMurray's essay showed how important it is for the wife to know something about her husband's business so as to be able intelligently to assist him to go forward in the company. A wife with ambition to do this informs herself about the company's problems, becomes a booster for the company, and thus makes herself automatically a factor in public relations activities.

Essays Prove Employee Is Factor in Good Will

A third essay contest, on the subject of "Employees as a Factor in Public Relations," was conducted by the committee on employees relations with the public, of which George C. Sawyer, Pacific Power & Light Company, Portland, was chairman. Open to men and women alike, with a first prize of $25, the contest was won by Louise Wilmot, Puget Sound Power & Light Company, Seattle. Extracts from her essay follow:

"Thus, being the difference between tangible assets and market price of the business, the value of public relations" (having shown that public relations is the modern name for good-will) "is neither a matter of theory nor of conjecture, but is as clearly defined and established as the bank balance, so that the value of an employee may be determined to a large extent by his contribution to this balance.

"Just as it is easier to lose money than to make it, it is easier to destroy good-will than to create it for all of us have known of cases where one error or a single thoughtless expression have undone the work of years. Thus the whole fate of a corporation rests in the hands of its massed employees and its future depends upon certain attributes —the character and personality of each employee, the qualifications of each for the position filled, teamwork among the employees themselves and teamwork in the presentation of the company's case to the public.

"Is it not true that at least 90 per cent of public prejudice against utility corporations arises either from ignorance or from misunderstanding? Is it not true that the only weapons of defense are knowledge and enlightenment? And is it not true that the only persons who can wield these weapons are the employees? Knowledge then is the sine qua non of the employee who would create good-will for the company which he serves.

"'Service with a Smile' is a good motto but 'Service with Understanding' is a better and it may have the smile for good measure also. The employee who would be a factor in the creation of good public relations will seek knowledge, the great sun in the firmament that scatters life and power with all its beams. He will know the truth, and in business as in religion, the truth will set us free."

N.E.L.A. Secretary Praises Geographic Divisions

Winding up the last session of the convention with an exposition of the organization of the N.E.L.A. and its geographic divisions, A. Jackson Marshall, secretary of the N.E.L.A., New York, said, "The structure of the National Electric Light Association might be likened to a pyramid with its broad base resting on the foundation of the geographic divisions. The headquarters staff is physically in New York, but their hearts and interests and sympathies are with the country as a whole. The national organization could not function without the geographic divisions. It exists merely to co-ordinate the work of the association and to give it continuity."

Discussing the wonderful work done by the women's committee since its inception seven years ago, he stated that other work should be found for the women, and that their specialized knowledge and experience should be used in shaping many of the policies heretofore thought best to be formulated by men alone. Women, he said, would be particularly adept in designing certain home fixtures and equipment, as well as in setting up sales campaigns.

Speaking of public relations departments within companies, he said, "There will be no need for such departments when employees universally realize that they have an obligation in creating and building good-will."

Boykin Elected President for Coming Year

At the executive session immediately following the public relations program on the last day of the convention, the following officers were placed in nomination and unanimously elected: president—R. M. Boykin, Puget Sound Power & Light Company, Seattle; vice-president—L. M. Hibbard, Idaho Power Company, Boise; state vice-presidents as follows: Idaho—R. B. King, Idaho Power Company, Boise; Montana—W. B. McDonald, Mountain States Power Company, Kalispell; Oregon—George L. Myers, Pacific Power & Light Company, Portland; Utah—P. M. Parry, Utah Power & Light Company, Salt Lake City; and Washington—Norwood W. Brockett, Puget Sound Power & Light Company, Seattle. Other officers were appointed by President-elect Boykin as follows: treasurer—W. E. Best, Puget Sound Power & Light Company Seattle; and secretary—Berkeley Snow, Electrical West, Portland.

Members at large of the executive committee elected to replace expiring terms were: representing the utilities—W. W. Briggs, Grays Harbor Railway & Light Company, Aberdeen, Wash.; and representing the manufacturers—A. S. Moody, General Electric Company, Portland. Holdover terms on the committee are held by J. P. Lottridge, Eastern Oregon Light & Power Company, Baker, Ore.; and J. I. Colwell, Graybar Electric Company, Seattle.

Appointment of new section chairmen was announced by President-elect Boykin as follows: Accounting—A. E. Janssen, Idaho Power Company, Boise; Commercial—L. A. Lewis, The Washington Water Power Company, Spokane; Engineering—D. W. Proebstel, Portland Electric Power Company, Portland; and Public Relations—W. H. Ude, The Washington Water Power Company, Spokane.

With the addition of the retiring president, A. C. McMicken, Portland Electric Power Company, Portland, all of those mentioned except the secretary and treasurer form the new executive committee taking office July 1, 1928.

A resolution "vigorously endorsing and heartily subscribing to" the principles laid down by the public policy committee, N.E.L.A., at Atlantic City in June of this year, was passed.

Variety of Entertainment Pleases Delegates

Convention arrangements were handled by subcommittees under General Chairman Geo. E. Sullivan, Portland Electric Power Company, Portland. A wide range of interesting entertainment was offered, including the president's reception and ball, a boat trip with dancing and entertainment on the Willamette River, the annual golf tournament followed by a buffet supper with dancing at the Lake Oswego Country Club, and the crowning event of the convention, a dinner dance with George Stoll and a Fanchon and Marco show as incidental entertainment. C. H. Gueffroy, Pacific Power & Light Company, Portland, was chairman of the entertainment committee and received many compliments on the quality of entertainment provided.

The ladies were entertained during the day by a hostess committee of which Mrs. A. C. McMicken, wife of the president of the association, was chairman. A highway trip, a city drive, a theater party, a bridge luncheon at the Waverly Country Club and a sport day at the Lake Oswego Country Club comprised the main events.

With an entry list of over 130, the largest ever recorded at a Northwest Association convention, the annual golf tournament for the Kilowatt and Manning Bowman cups was played over the Lake Oswego Country Club course. A number of special prizes were offered. Erle F. Whitney, General Electric Company, Portland, was chairman of the golf committee.

Registration at the convention, including women, was about 350.

Ideas for the Contractor

How a Motor Specialist Sells Industrial Lighting

Push-Buttons Outside Street Door Operate Any One of Four Lighting Systems on Display Floor and Indicate Details on Advertising Panel

DISPLAYS of lighting equipment are not uncommon in the quarters of manufacturers' representatives or the shops of merchandisers of such equipment. A complete display of lighting equipment in the shop of a motor specialist, however, is a novel situation.

And yet for a company doing industrial lighting installation as well as making installations of motor equipment, what is more natural than a first-class display of such equipment arranged in such a manner that the public may see for itself what it will do?

Such a display has been arranged by U. K. Petersen, manager of the Quality Electric Motor Company of Oakland, Calif. This company has a wide window frontage on Twelfth St., a busy thoroughfare. In this part of its quarters is housed, at the back of a store space, the business office of the concern.

The store space is devoted to the display of a few types of motors, attractively exhibited on pedestals or platforms. This display, in contrast with the usual floor covered with innumerable sizes of motors, attracts attention to itself because of the placing of a few items to advantage over the floor area.

To capitalize upon the value of this display at night, Mr. Petersen decided to install lighting which would flood the entire floor. Then the idea occurred to him that even the installation of such lighting could be made a profitable display feature of his establishment.

From the ceiling he suspended three rows of units in parallel lines. In two rows there were three drop cords with bare lamps and tin reflectors, such as is common in a great many industrial plants. There were three units in each of these two rows with R.L.M. standard reflectors; there were three units in each row with Glasteel diffusers. In the center was run a row of enclosed office fixtures. Above the window at ceiling height were also placed two floodlights with color screens. Each of these types of lighting equipment was wired on a separate circuit.

Immediately behind the plate glass of the window was placed a long box divided into five compartments, each of which was covered with a ground glass on which was printed a brief description of one of the types of lighting installed. The lamp inside each compartment was wired on the circuit corresponding to its description, installed on the ceiling.

Each circuit had two switches to control it. These switches were housed in metal industrial push-button-type switch boxes. One was mounted on the inside door frame and the other on the outside where it could be operated by passers-by from the street. A master switch on the inside shifted the control of the four lighting circuits from inside to outside. A time clock turned off these lighting circuits at midnight.

The wiring for this lighting equipment is of the typical industrial open-conduit type. The installation makes a good example of industrial lighting practice.

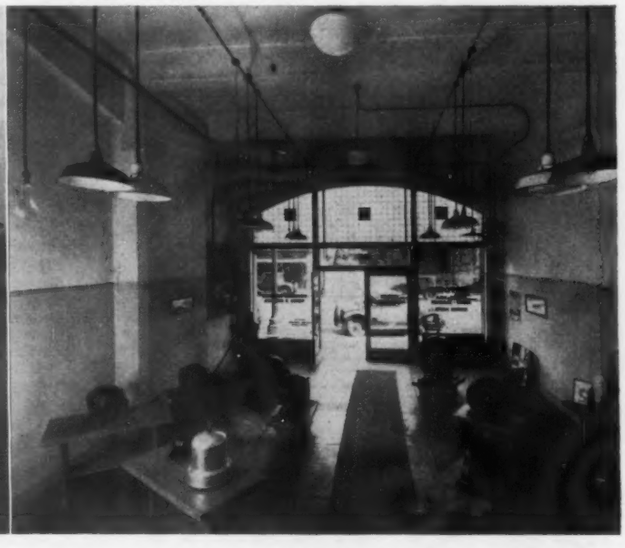
For additional effect a floodlight which can be controlled to throw its light on any one display is available and can be plugged in to the circuit. A small spot-light is trained on a sign at the back of the room and is left on all night.

This installation has been the means of selling a number of good industrial lighting jobs, according to Mr. Petersen. Every effort is made to develop lighting business in connection with motor or other industrial installations, he says.

Shop Organization

The motor shop adjoins the office and display room at the rear and has a street entrance on Madison St. Here

Push-buttons on the door jamb operate lights within as the glass panel at the front of the window lights up to tell light intensity and what units are used.



Bare lamps, R.L.M. and Glasteel reflectors are mounted side by side so that the lighting from each type can be compared. Controls are at the front door.

too is a large window on which in addition to the name of the concern are listed the telephone numbers of members of the company so that anyone may be called at night in case of motor trouble.

The method of handling the stock in connection with the repair and rewinding departments is of particular interest. The stockroom occupies a large area under the mezzanine floor at the side of the shop. Next to the driveway entrance is the shop foreman's and stock-keeper's office. The stockroom proper opens off from this office.

The stockroom is arranged with a parallel series of bins and racks, each of which is devoted to a particular type of stock. The first racks are pipe racks with special space available for short ends and bends. The pipe is arranged in these racks according to its greatest use, the ½-in. pipe for which there is greatest call occupying the middle or waist-high section of the rack.

Separate Bins for All Stock

Another series of bins is devoted to conduit fittings in which each type and size is separated and easily available. Pipe straps and similar fittings are also kept here. Another rack is devoted to porcelain, tape, special fittings and paint, each with its segregated portion of the rack. One entire rack of bins contains the lamp stock. Another rack contains a full line of fuses. Recently the number of fuses has been reduced to the more standard sizes.

For small parts, screws, nuts, bolts, small repair parts and the like, baker's tin bread pans, painted and labeled at the end, are used rather than bottles or boxes as is common in some plants.

Rewind department on mezzanine floor of the motor shop.

This gives full view of the contents and enables the stockman to tell how much stock is left of the particular variety.

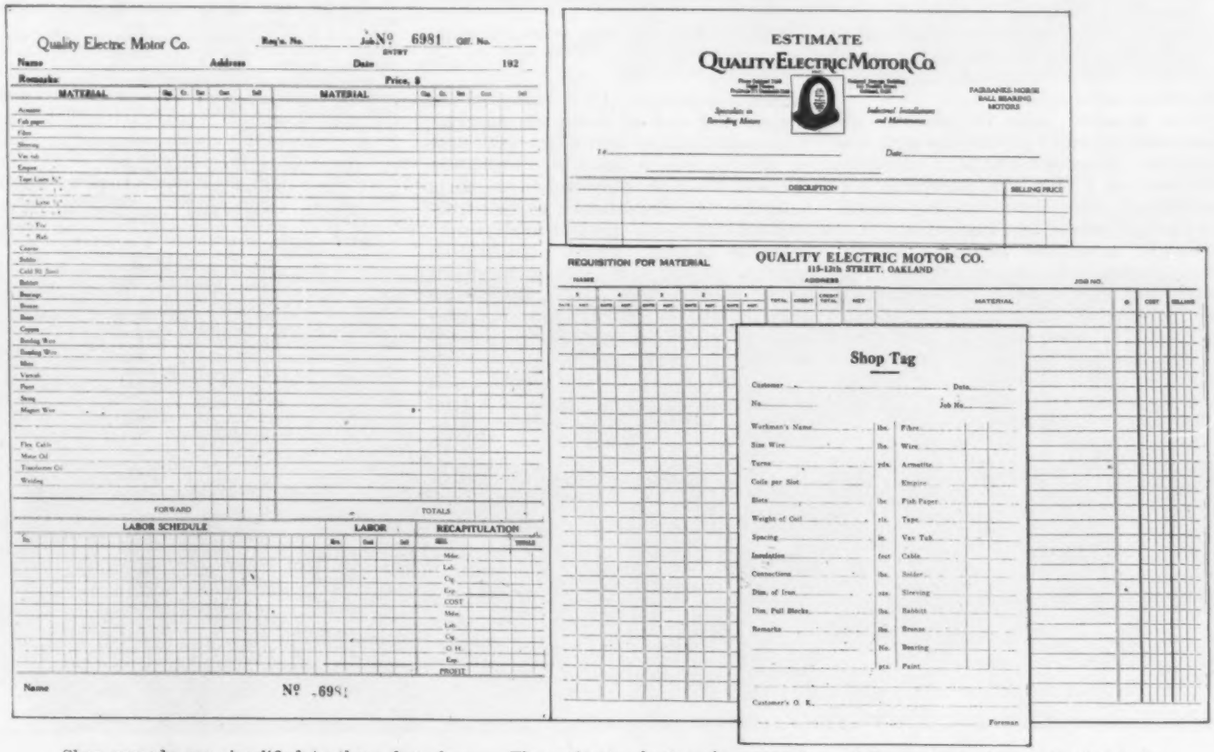
For trade pulleys the split-type pulley with two sizes of hubs and rims of all sizes are kept. In this way Mr. Petersen says it is possible to trade in many types of pulleys and not lose money on the transaction. New pulleys are kept in a separate portion of the rack, on the other side, together with belting.

Repair and Rewind Shops

A large space is devoted to the repair and testing of motors on both the main floor and the mezzanine. On the main floor is a small motor and repair bench, a bake-oven for drying out rebuilt motors and transformers, a dipping tank for the rewound coils, a motor cleaning room supplied with air, water and gas; welding and brazing outfits, both acetylene and arc; lathes, drill presses, shapers, punches and presses. Small motors under repair are kept in individual racks. In this way all parts belonging to one job are kept together. Two cranes enable the moving of heavy motor equipment to any part of the shop.

A special testing block arrangement is provided at the rear of the shop. An adjustable rack is arranged in the floor to hold the motor rigid; it is then connected by belt to a generator where tests are made for load, heating, bearings, stator and rotor current, impedence and speed regulation.

The rewind shop on the mezzanine is well equipped with coil winding and core shaping machinery.



Shop records are simplified to these four forms. The estimate sheet carbon copy is used for a shop order if the job is let.

Looking down the corridor of the General Electric Company floor of the Russ Building with its well laid out lighting installation.

Job Organization Speeds

WHETHER it is a skyscraper, an apartment house, or a bungalow, upon how the job is organized and the work carried on depends largely whether the electrical contractor will meet his estimate and make a profit from the job. The size of the contractor's shop and equipment, the size of his organization, have little to do with it. It is, rather, how well the various assisting agencies can be enlisted to do their respective tasks at the right time which determines the final result.

Such is the experience of Victor Lemoge, Electragist of San Francisco, to whom was given the contract for wiring the West's largest and newest skyscraper, the Russ Building in San Francisco.

The Russ Building installation was largely a problem of size and height. Otherwise it was not dissimilar from the usual office building with its modern electrical installation.

Size, however, calls for efficient organization of work to keep up with the speed of the other crafts engaged in the building. This was particularly a problem in the Russ Building which was being speeded to completion.

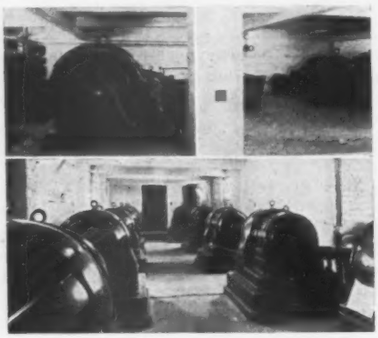
Height presented problems of its own, particularly in pulling in, or rather dropping down, feeders from the top story to the main switchboard and vault in the basement. In both particulars the handling of the job at the Russ Building was done in such a way as to be worthy of mention.

The other particular feature of the Russ Building installation was in the use of rectangular steel duct inlaid in the floor for the use of the telephone system. This feature of the work was covered in an article in the April issue of Electrical West, pp. 214-15-16.

Necessity for Speed

With any major construction project involving large capital, the necessity for fast construction is a matter of daily increasing interest charges. Every day's loss in construction time results in interest charges, very often, on the entire sum to be expended for the construction of the project.

For this reason, according to George Kelham, architect, the construction of a skyscraper constitutes a particularly



Elevator hoists, 32nd floor (*top*) and motor generator sets at 20th floor.

intricate problem. All features of the engineering and all forms of construction contemplated in the project must be worked out in advance. From the moment the first shovelful of earth is turned every department of construction activity must proceed in rhythm.

Victor Lemoge, whose organization consists of himself and a foreman, whose shop is very small, and whose office is shared with another business concern, might not generally be considered by the uninitiated as in the class of contractors who could handle a job of this size. That he did so and kept his crews not only apace with the general construction but in many cases ahead of the other crafts engaged in the building may be taken as a tribute to the organization skill which he displayed in handling this job.

His headquarters organization consisted of a foreman and a "straw boss." During the most active construction period, that when conduit was being placed ahead of the concrete pouring, at which time a maximum of 38 men were in his entire crew, the groupings of those men at particular tasks enabled the speeding of the work.

On the underfloor duct system, five men under the general charge of the foreman were employed. Two men were employed ahead of the crews as layout men, going from floor to floor, marking the position of the outlets and the location of runs of conduit, ducts and boxes with string and chalk. The five men on the underfloor duct crew followed, two laying the conduit in place, two men taping the joints and the arc welder following with his welding tip. He made the duct fast to the steel strap saddles and the saddles fast to the steel members of the building by welding with the electric arc.

Four men were kept on the installation of the riser conduit in the riser shafts. Three men did nothing but install circuit conduits from the panel locations to the first outlets. Four men were kept busy running out horizontals to the cabinets. These men also took care of the telephone terminal conduits. Four men set the base plug boxes in their outer wall locations ready in place for the pouring of the concrete. One man was kept on emergency and temporary work at all times.

All bending was done at a portable bench which was carried from floor to floor as needed. One man was kept busy making the ½-in. and ¾-in. conduit bends for switch legs, etc.

For supply of material, the use of the construction elevators was allocated to the various crafts. Mr. Lemoge had the use of one elevator three hours every day for a definite period of time. Three helpers were kept busy during these three hours carrying material to the job. Between times they were busy organizing the material to be carried to the floors required. In spite of the large number of men working, never more than eight men were at work on a floor at a time. Portable benches were provided so that every two men had a bench from which to work.

Labor-saving machinery played an important part in the speeding up of this work. The article previously referred to in Electrical West described the fast steel band-saw which was used to cut all conduit and duct as if it were made of cheese. A motor-driven threading machine was also used to take care of this important detail.

Within the individual crews each man was given one operation to carry out throughout the building. There were eight zone crews on ½ and ¾-in. conduit distributed throughout the building, each crew caring for a definite section. Following

Conduit runs under the basement floor slab from the feeder shafts to the main switchboard location.

the Russ Building

the conduit crews two circuit crews followed. These crews used Hykon reels to pull in wire. Three reels of wire were handled by two men, each pulling in three circuits to a pipe. Another crew would pull in another three wires. The first crew did nothing but pull in the circuit feeders to the first outlet, the other crew followed with the rest.

Dropping Feeders Thirty Stories

In buildings of this type the handling of feeders to the top story becomes a problem unique in itself. In this case organization played an important part also.

All feeder cables were ordered cut to exact length and were delivered as needed wound upon reels to the 27th or 30th floor of the building. Each reel was marked with its individual feeder number.

In feeding the cable into its individual conduit from this height (the longest was 401 ft.) the problem was one of holding back the cable to keep it from getting beyond control. In this case a very simple brake was devised using a round piece of wood as a lever which pressed down on the cable, forcing it between two rollers.

There were 3,300 ft. of 250,000 circ-mil, 3,300 ft. of 4/0, 3,300 ft. of 3/0, 10,000 ft. of 2/0 and 16,000 ft. of 0 wire used as feeder in the building.

In the main portion of the building, that below the 17th floor, four distribution panels were used on each floor. Each feeder was made to supply three floors.

A total of over 246,000 ft. of conduit of various sizes was used in the building, of which 180,000 was of ½ in. There was 20,000 ft. of underfloor duct installed. More than 669,000 ft. of wire was used.

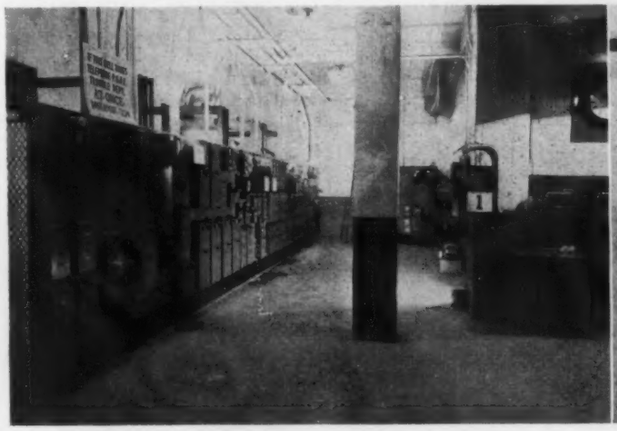
Other statistics of note in regard to this installation are of interest. There are 16 passenger elevators of the latest automatic, self-leveling, push-button control type. Besides these there are four automobile elevators in the garages and one sidewalk lift. There are 72 panels for distribution installed up to the present time and more to go in. There are 21 power panels, served with 4,400 volts for motors, elevators, etc.

Many individual electric systems, such as interoffice telephone systems, bond house blackboard systems, lamp annunciators, automatic heating control, watchman and fire protection systems, as well as telegraph and telephone systems are included in the building.

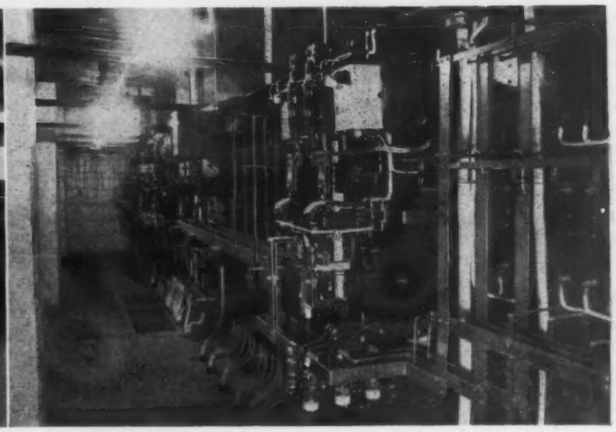
The 32-story Russ Building, San Francisco's newest skyscraper.

Some idea of the size of the job may be gained from the figure given by Mr. Lemoge for the total work to date, including extras. To date the electrical work has reached the sum of $220,000. There was $16,000 in temporary work during the installation or construction of the building.

The most notable electrical installation from the standpoint of lighting



Main switchboard of the Russ Building. Buses at left connect with transformer vault behind the wall. At right of picture may be seen control apparatus for fire and watchman system.



The rear of the main switchboard. Heavy buses bring the energy from the main transformer vault behind the wall to the board. Feeders tap in to a raceway under the floor covering.

and office convenience is the installation put in for the General Electric Company's offices on the eighth floor of the building, occupying the entire floor. The entire lighting system for this floor was designed by L. G. Gianini, lighting specialist, Edison Lamp Works, and even the color of the walls and furnishings was decided upon from the recommendations of this plan. This floor demonstrates an ideal office installation as far as electrical conveniences and lighting are concerned.

The Russ Building, although it has been occupied and running for several months, because it is a miniature city in itself, is a building in which the electrical work may be said never to have been completed. Changes in offices and tenants' requirements will continue as long as the building stands. The electrical work was started in September, 1926, and even today a crew of eight men is working there steadily. However, the basic installation has been designed to take care of much future load. The electrical engineers, Hunter & Hudson, in laying out the equipment and wiring made every effort to design the installation for useful service as long as the building lasts. And from the sturdy, well engineered, earthquake-proof type of construction employed in this building, such a requirement, in the light of the progress of present-day electrical development, may put it to severe tests.

Unit Lighting Bank for Surgeries Developed

Prismatic glass ceiling bank which can be installed as a unit in a hospital surgery.

PROGRESS in surgery during the last 25 years has been rapid. Not so, however, has been progress in the development of lighting apparatus for the surgical or operating rooms of hospitals. Of late, however, attention of illuminating engineers has turned abruptly to this problem with the result that the fancy contraptions—very awesome and professional looking—with which hospitals have been equipped, have been subjected to searching scrutiny. This scrutiny has revealed that much of this ornate lighting apparatus has been anything but efficient and in many instances actually has been obstructive to the work of the surgeon.

Adaptations of modern lighting methods to the hospital are being based upon sounder illuminating engineering principles. The new hospitals now built as a rule are being equipped with equipment superior to that of the past. An interesting application of standard equipment, which is soon to be installed in two or three Pacific Coast hospitals, long built, has been brought out.

For installation in hospitals already built as well as for new hospitals, a bank or ceiling of prismatic glass plates has been developed by Holophane engineers. Such a ceiling or bank can be installed by the electrical contractor as a unit.

In designing this unit bank, the engineers set up a model operating room where experiments were conducted. The problem was analyzed as:

> How to put enough light on a wound to stand the high absorption and shading loss, confining it to the wound area, at the same time spreading sufficient light around the room to prevent eye adaptation difficulties, and yet not so much as to compete with the wound illumination; and to do this at a reasonable cost.

The factors sought after were:

> (1) A desirable wound illumination of 1,200 foot-candles; (2) an illumination of the general field such that the reflected light is just a little less bright than the interior of the wound (usually from 30 to 40 foot-candles); (3) an essential of good vision is "light from a dominant direction," but as the operating field and the direction of work vary from operation to operation, it is necessary to have a variable "dominant direction" to the light; (4) a source of large area to avoid shadows and secure adequate diffusion; (5) high vertical illumination; (6) no glare; (7) no annoying heat; (8) reasonable cost of installation, operation and maintenance; (9) multiple lamping (some devices put only one lamp between life and death); (10) flexibility of light with fixity of fixtures.

The bank containing the directional lenses, arranged as parts of an optical train, is mounted in a frame suspended from the ceiling or made flush with a furred ceiling and occupying about 72 sq.ft. The individual plates combine to make one large lens that focuses on the operating table. Each "train" consists of a reflector, lamp and lenses in such relation to each other that the maximum beam strikes the center of the operating area. The overflow from the lens takes care of the general field illumination. The optical characteristics of the lens are such that a three-dimensional soft or dissolving spot is developed to take account of varying thicknesses of bodies and heights of tables. The "spot" has an area larger than the wound and it will be advisable, the recommendation states, for the hospital staff to adopt the use of a neutral colored cover to absorb the extra area of high illumination.

In the past the surgery lighting device had to be moved to change the direction of the light on the wound. The new method permits the light pattern to be varied to suit different surgical conditions without manipulating cumbersome mechanisms. The light is moved instead of the fixture.

Exterior

Dining Room

Red Seal Home Ideal for Business Woman

WATSONVILLE, Calif., has many Red Seal homes to its credit. One of the major reasons for this is the fact that the electrical contractors in that city believe in the idea enough to live in Red Seal all-electric homes themselves. The pictures on this page illustrate rooms in the all-electric home of Mr. and Mrs. Stanovich, proprietors of the Central Electric Company. Among its electrical features are: an 8-kw. range, electric heating throughout, a dish washer, kitchen fan, refrigerator, 6-kw. water heater, fireless cooker, kitchen mechanic, washing machine and ironer. The total connected load is 41 kw. Mrs. Stanovich, who is busy at the store all day, finds the electric home very convenient and easy to maintain, ideal in fact for the woman who is in business.

Breakfast Room

Laundry Porch

Living Room

Two views of the Electric Kitchen

How an Ogden Contractor-Dealer Advertised a New Location

So that all of Ogden, Utah, might know of its move to a new and better location, the Ogden Electric Company hired a prominent billboard and advertised for a whole year its new location and its services to the public. L. A. Herote, manager, declares that the company wanted to fix the name of the shop in the public mind and to establish the fact that it did high quality wiring and handled high-grade lines of merchandise.

Estimating Ventilation for the Small Industrial Plant

By J. R. WILSON*, Quality Electric Works, Los Angeles.

THE efficiency of hot air furnaces can be increased very materially by the installation of a propeller fan in the cold air intake duct as shown in Fig. 45. If a by-pass regulating damper is installed as shown, fresh air may be drawn in from the outside. Recirculation is accomplished by closing this damper, thus drawing down the cold air through the floor register

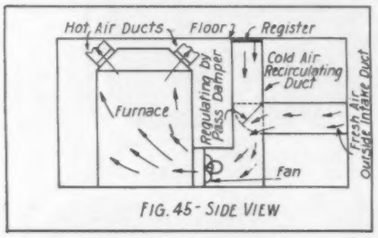


FIG. 45 - SIDE VIEW

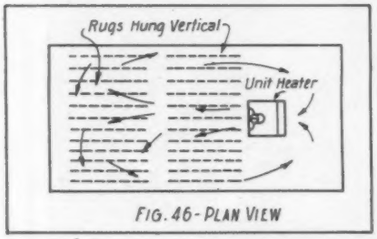


FIG. 46 - PLAN VIEW

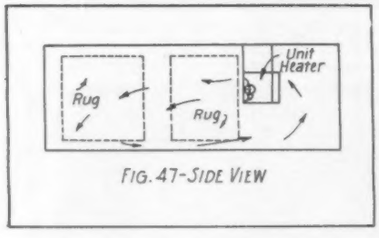


FIG. 47 - SIDE VIEW

from the floor above. The damper also may be set in such position that the fan will draw in some fresh air and will remove also some of the cold air from the upper room. This gives a combined heating and ventilating effect.

The size of the fan of course will depend upon the size of the furnace and the size of the building being heated. A variable speed, 16-in. fan will prove adequate usually for the ordinary residence or small building. A fan of this size is quiet in operation, and with the speed regulating feature can be made to supply the amount of air necessary to meet changing weather conditions. This size of fan also has the added advantage of very small current consumption and can be wired directly to the lighting circuits. This method of forced circulation has the advantage of providing both positive ventilation and effective heating.

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Electrical Estimating Series—XXXVII

Drying Systems

There is a wide field of application presented for use of propeller fans in drying operations. This applies to rug and carpet cleaning, clothes dyeing and cleaning, macaroni drying, and other innumerable branches of industry. The old method consisted of placing carpets, rugs, clothes, etc., in a separate room and applying a super-heating system to dry the materials. It has been found that this system is not alone slow and expensive but carries a high degree of hazard of scorching the material unless constant supervision is maintained.

The modern economical method consists of the use of unit heaters. One of these units comprises a heating cabinet containing a propeller fan and heating coils. These heating coils usually are placed in the rear of the cabinet, with the fan at the front side. The air being drawn through the heating coils is heated and blown out at a high temperature. The dry air absorbs the moisture and recirculation is accomplished through the back of the cabinet.

This system materially decreases the time required for drying. In the case of carpets and rugs the time required for drying is usually two to three days, as compared to from seven to ten days by the old superheat system. The heat to the coils may be supplied by gas, steam or electricity. Fig. 46 shows a unit heater at one end blowing the heated air through the space. Fig. 47 shows a side elevation with the rugs hung vertically.

Skylights and Ventilators

Many times the skylights and ventilators which are installed when a building is built, to provide natural ventilation, prove to be inadequate when put to the test, especially in the summer time. To rebuild them usually is impossible due to the structural difficulties or prohibitive expense. These problems can be solved effectively in an economical and simple manner by the use of propeller fans to help out the natural ventilation. A power roof ventilator is installed in a penthouse adjacent to the skylight and connected thereto by a short section of

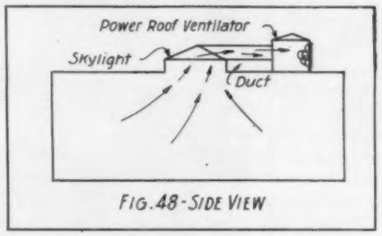


FIG. 48 - SIDE VIEW

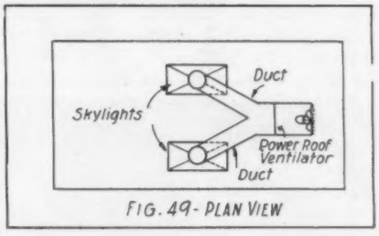


FIG. 49 - PLAN VIEW

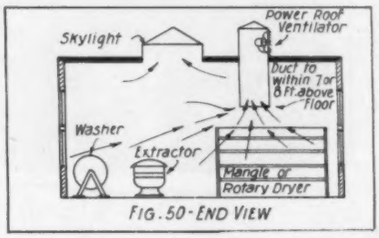
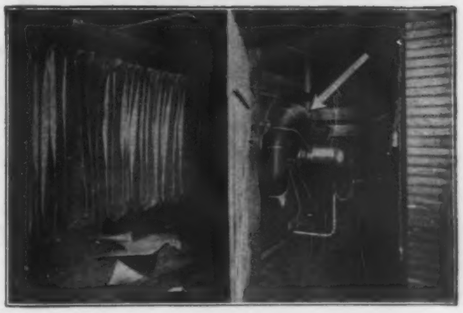


FIG. 50 - END VIEW

To get a quick air change and remove steam from vats ample fan capacity must be provided near the point at which the steam or fumes rise. The photograph at the left shows this type of installation. At right may be seen application of fan where air is to be forced into a drying compartment.



duct of proper size. This method is shown in Fig. 48. This scheme has the advantage of increasing the ventilation while not detracting from the natural light-giving function of the skylight to any appreciable extent.

It is possible sometimes and desirable also, to connect two or more skylights to one power roof ventilator by means of short ducts running from the skylight ventilators to the fan penthouse. These ducts should be properly proportioned and constructed (as explained previously), and should be kept as short as practicable. It is not advisable to connect many skylights to one fan as trouble will be experienced due to the resistance encountered by the air when traveling through ducts of different angles. This scheme is shown in Fig. 49. Reference to Figs. 14, 15 and 41 of this series will show methods of using power roof ventilators where there is an available space between the ceiling and roof of the building.

Laundry Ventilation

Ventilation of public laundries presents a field wherein the electrical contractor can be of real service. Anyone who pays a visit to one of these establishments very quickly will realize that ventilation is absolutely essential to the continued well-being of the workers.

The combination of high heat and humidity, due to the very free use of steam and hot water, creates a condition of discomfort that can only be relieved by generous use of ventilating equipment.

Due to the heat and steam prevailing, laundries require a very rapid air change, the same as do hotel and restaurant kitchens. The application of the ventilating equipment however must be given a great deal of thought if the installation is to prove efficient. There are many devices used in the modern laundry, each giving off a certain amount of steam or heat, and these devices are placed in different parts of the building so that the problem of adequate ventilation may become somewhat complicated. The laundry equipment usually comprises washers, extractors, mangles and ironers of many sizes.

In Fig. 50 is shown a power roof ventilator installed on a one-story building with a duct dropping from the bottom of the ventilator to within seven or eight feet above the floor. This would bring the opening of the duct slightly above the mangle or rotary dryer. This centers the point of exhaust over the area which is most affected by the accumulation of heated air and steam. That is, the excessive heat and steam from the mangle should be carried off first, and to accomplish this it is necessary to lower the duct. Without a duct the load of the whole room would be put upon the fan. It is very important that the duct opening be placed to one side of the mangle so that if any condensation should occur during cold weather the dripping will not drop on the clothes.

If a skylight is paced in the roof, it should be so designed that it can be opened or closed at will. The windows in the side walls should also be so designed that the amount of fresh air intake can be regulated. Under certain conditions of weather it may be most desirable to admit the fresh air through the skylight rather than the side windows, or vice versa. In Fig. 51 is shown a typical small laundry lay-out with the roof ventilator placed at one side of the mangle as recommended herein. It will be noted that the duct opening is about centrally located with relation to the machinery. In this case the fan will draw about equally from all of the side windows when the skylights are all closed.

In the case of a building containing two or more floors it is not always possible to install roof ventilators leading from the lower floor. In that case the method shown in Fig. 52 can be used to good advantage. At A is shown a fan installed in the side wall with the duct leading to a location near the mangle. Of course if it is possible to run the duct through the upper floors and install the fan as shown at B this method is preferable because the fan will handle a larger amount of air due to the natural flue effect.

In all cases laundries should be figured on a basis of a two-minute air change or better. Even in the winter time the rooms are excessively hot and full of humidity. In summer time the conditions of course are worse, so the maximum air change should always be advised. In most cases it is advisable to install two or more fans in the manner shown in Figs. 50, 51 or 52. By this system the fans can be operated as needed—one used while the other is shut off, and all used during extremely warm weather. For the smaller type of laundry, where no large mangles or rotary dryers are used, the systems shown in Figs. 19, 21, 48 and 49 can be used, or a combination of any of these systems may be used, viz: the system shown in Fig. 48 can be used with that shown in Fig. 50. The essential thing is to provide a large volume of air based on a one or two-minute air change. Figure the air change as per instructions previously given.

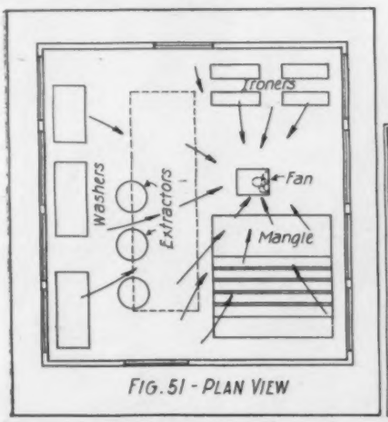


FIG. 51 - PLAN VIEW

Location of vent fan in a laundry.

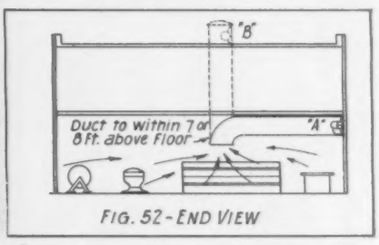


FIG. 52 - END VIEW

Better Merchandising

Raising Fixturing to an Artistic Profession

Girl Art Student Inheriting Contractor-Dealer Establishment Decides to Specialize in Fixturing for Interior Decoration

FIXTURES for home lighting—are these not as important as the interior decoration? Is there not a field for the electrical contractor-dealer in the fixturing of homes which calls for special study and attention?

Finding herself in charge of an electrical shop and store upon the death of her father, Miss Mary Gilmer, now owner of the Gilmer Company at Santa Monica, soon decided to specialize in the fixturing of fine homes such as are being built in numbers in the vicinity of Santa Monica. At the University of California she had studied art, following up her college work with a special course at the School of Applied Design in New York City. She had also had some business school training in San Francisco.

When the Gilmer Company business was left in her charge she thought to run it as an ordinary contractor-dealer establishment. This business consisted of several departments including merchandising of appliances, fixtures, and contracting.

The merchandising of appliances she found to be in a demoralized condition. Cut rate appliances at department and drug stores, power company merchandising campaigns on low terms and long-time payments, and other factors of this nature "took all the incentive from the merchandising part of the business," according to Miss Gilmer.

The selection of fixtures, the design of special fixtures for particular rooms, the co-ordination of the lighting with the interior decoration, and the selection of equipment which would conform with the purposes to which the rooms

Mary Gilmer, contractor-dealer, but more particularly personal consultant on artistic lighting fixtures.

were to be put, opened up a field for specialized and professionalized service somewhat in advance of the mere selling of stock fixtures.

By making personal contacts with builders and more particularly with home owners, by means of sketches, drawings, catalog designs and layouts, she has sought to advance this type of work.

A typical example is the home of J. A. Baum, at Santa Monica. In this home Miss Gilmer did not have the electrical contract and did not install the cove lighting in the dining room. However, when it came to selection of fixtures her reputation among neighbors gave her entree as special lighting consultant. The photographs at the bottom of the page show the treatment of lighting in two rooms of that home.

A particular problem presented itself in a large sunroom, attractively decorated with brilliant colors and in the daytime one of the gayest and most attractive rooms of the house. Mrs. Baum desired to have the room at night equally gay in order that she might use it to entertain at card parties. She wanted plenty of light, but ordinary fixtures would not do. The usual candle-type of fixture, if it had enough wattage in it to provide the illumination, would be so glaring as to be uncomfortable and consequently inhospitable.

As a student of art Miss Gilmer was acquainted with modern trends in German and French fixture design along modernistic lines. Consequently she designed, and had built out of metal and parchment, the fixture shown at the bottom of the page. For the walls she designed rectangular brackets to match.

Inside each of the two large ceiling fixtures she placed a large wattage lamp. Masked or diffused by the ornate and highly colored parchment there was no uncomfortable glare. Most

Modernistic fixtures designed and built for a Santa Monica home by Miss Gilmer. At right may be seen hand-wrought imported candle brackets in the same home.

of the light was thrown in a square against the ceiling from which it was distributed to the walls and throughout the room. The fixtures are large but the interesting pattern and the bright colors, matching the upholstery of the furniture, contribute to the gaiety of the surroundings and Mrs. Baum declares the lighting eminently satisfactory.

The lighting of other rooms in the house illustrates also another type of work which Miss Gilmer does. The hand-wrought bracket fixtures shown on the last page—on each side of the fireplace—are the type of fixtures which she obtains from noted iron workers in Italy, Spain and in this country.

Personal solicitation and the recommendation of people for whom she has done the fixtures, provides her excellent entree into other homes of the same class. Miss Gilmer is very optimistic as to the future of her work in the vicinity because of the number of highly restricted residential tracts which are being built up in that neighborhood. At present she is developing a number of modernistic lighting schemes for homes of moving picture people whose entire decorative plan will be in the new mode.

The Gilmer Company still does some wiring although most of the work is in connection with the fixture work. Three men are the usual crew kept for the wiring and installation department. A girl is employed in the decorating of such fixtures as are fabricated in their own small shop. This shop is in the rear of the store which is also the display room, and is equipped with the usual spray booth and fixture assembly equipment. Miss Gilmer's sister assists her in the business, taking care of the accounting and bookkeeping for the firm.

Gradually this active and attractive young lady is bringing builders and home owners more and more to do that which she suggests on a small tag affixed to each fixture installed in a new home—"See Mary Gilmer for lighting fixtures."

Taking Advantage of Fairs and Parades

SUMMER is the time usually given to county fairs and expositions. It is at this time that the electrical dealer may display to a large number of people the convenience of electrical merchandise.

A display of refrigerators works in well particularly in expositions held in hot weather. The Electro-Kold Corporation never fails to take advantage of the Interstate Fair held at Spokane each year. The picture reproduced above shows the booth used last year. It has attracted a great deal of attention among domestic prospects and commercial users of refrigeration. The booth was 30 ft. wide and 14 ft. deep, divided into two sections, one section showing a line of domestic refrigerators and a commercial display case, the other section showing a modern kitchen equipped with a refrigerator. In the kitchen display was a porcelain model refrigerator, a porcelain model Hotpoint range, a double drainboard porcelain sink, a white enameled kitchen cabinet and a breakfast room set.

It was estimated that 15,000 people visited the booth during the week.

In many communities contractors and dealers who individually could not afford the expense of a display at a county fair are co-operating in arranging for such a display, or else dividing up display space into small booths, each for himself.

Parades

Archie Cline, active contractor and merchandiser of San Luis Obispo, took advantage of a parade being held in his city to advertise washing machines. A washer was hitched to a goat and drawn through the city in the parade. Mr. Cline's rising young merchandiser, his son, seated himself upon the washing machine and drove it through town. A miniature clothes line was set up behind him as will be seen in the accompany picture. This exhibit won the prize for the best float in the parade. It also helped to make many sales.

Two Merchandising Ideas in Advertising and Display

The picture below shows how the Newbery Electric Corporation, Los Angeles, has had its name set into the marble of the entranceway to its store. D. D. McFarlane, merchandising manager, declares that this has helped to fix the name of the store in the minds of the people passing the store.

At the right is a window display made up as a replica of a room in the Mark Hopkins Hotel, equipped with electric heat. This window display was made by the Great Western Power Company, San Francisco office. Because it was unusual it attracted a great deal of attention, particularly to the electric heating idea.

The salesman comes later with the ice trays filled with ice and frozen dessert.

Refrigerator Satisfaction Insurance

Taking the Possible Kicks Out of the All Important First Impression

PERHAPS more electric appliances are unsold the first few minutes of their use by the purchaser than the combined efforts of the salesman can overcome in many months of hard work. Little difficulties with the operation of the appliance when it is new and stiff or while the purchaser is yet unexperienced in its use—the anxious waiting for the first freezing of ice cubes in the new refrigerator, the first cake in the oven of the electric range, the first waffle that sticks to the iron—these little misunderstandings and difficulties are all-important in their influence upon the purchaser.

Realizing that first impressions are often lasting impressions, H. H. Courtright, manager Valley Electrical Supply Company, Fresno, Calif., has adopted a means of eliminating all possible unfavorable first impressions of the purchasers of electric refrigerators from his establishment.

Before delivery of a refrigerator is made the unit is very completely tested at the shop and the refrigerator delivered with the frost tanks frosted or at least very cold.

No trays are delivered with the refrigerator.

The installer mentions this to the housewife and says that a salesman will come with the trays as soon as the machine is set up. The machine is set up and in the trail of the installer comes the salesman bringing the trays.

The ice cube tray is filled with cubes of ice, the dessert tray is filled with a frozen pudding ready to be eaten. The salesman apoligizes for not having sent the trays with the machine but mentions that the housewife may be glad to have the ice cubes ready for her husband when he arrives home at supper time, when she can prepare a cooling beverage for him. He also suggests that in the other tray there is plenty of dessert for supper, in fact that there is enough for two families, and the neighbors might like to see her new machine and taste how good frozen desserts can be made with it.

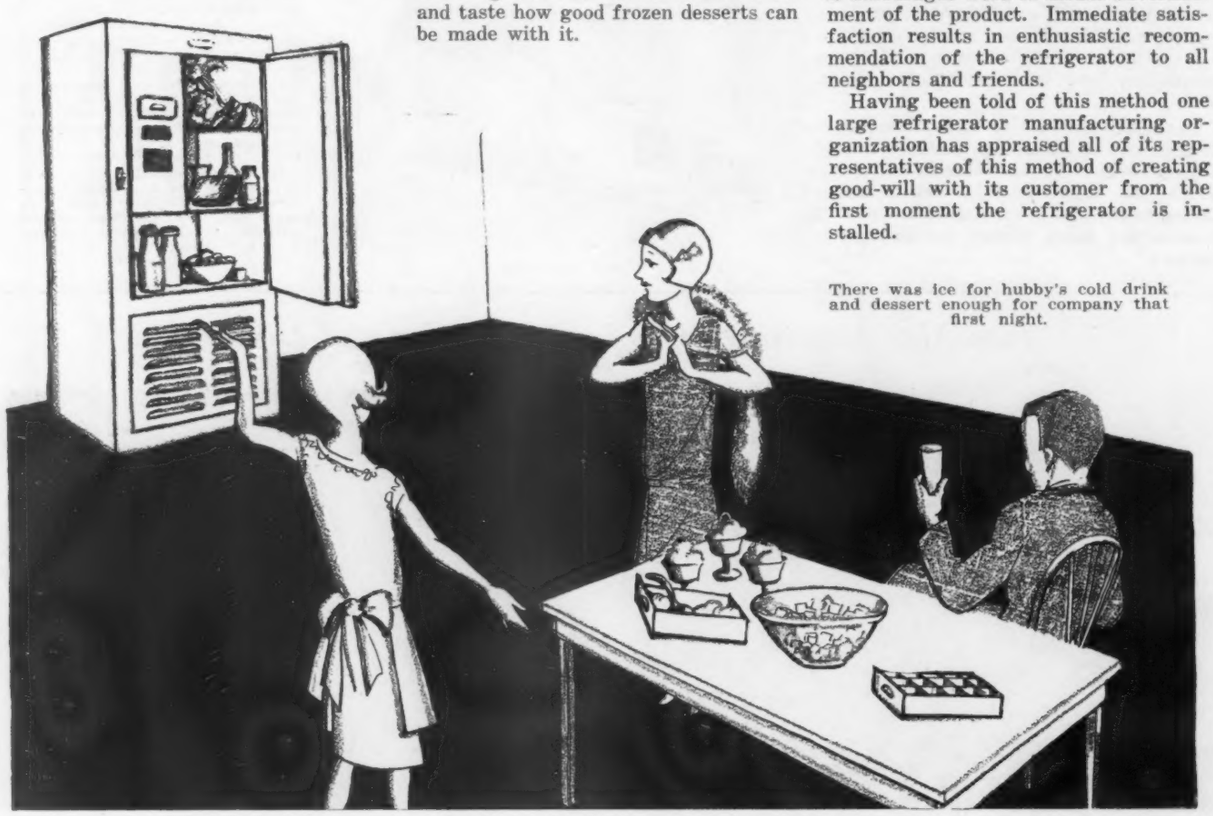
The housewife is delighted and calls in her neighbors, treats them to some dessert and the refrigerator "goes over big" from the moment it enters the household.

Mr. Courtright adopted this plan after finding that a number of the trays, because they are stamped out of metal, and oil is used in the stamping process, often have an invisible film of oil on them which only can be removed by strenuous scouring. If the refrigerator is delivered without having the trays scoured the housewife often neglects to scour them and places water in the trays to be frozen.

If the first freezing takes several hours to accomplish the entire family waits anxiously for the ice cubes to be frozen and then finds them tasting of oil. The refrigerator is a disappointment. The first experience in making a frozen dessert may be of the same nature and instead of being proud of the refrigerator and showing it to the neighbors it sometimes takes a little while before the housewife learns to use it in a way to give her satisfaction.

The method employed by the Valley Electrical Supply Company is inexpensive and yet it is most effective in that it encourages word-of-mouth advertisement of the product. Immediate satisfaction results in enthusiastic recommendation of the refrigerator to all neighbors and friends.

Having been told of this method one large refrigerator manufacturing organization has appraised all of its representatives of this method of creating good-will with its customer from the first moment the refrigerator is installed.



There was ice for hubby's cold drink and dessert enough for company that first night.

Co-operative Selling for "Consumer's Dollar" in Northwest

How Central Stations and Merchandise Dealers Unite to Sell More Electrical Appliances of All Kinds

AS THE realization grows upon the industry that its chief competition is with other industries for the "consumer's dollar" interest grows in the possible methods of enlisting all branches of the industry in general co-operative selling movements. Merchandising authorities agree that each locality presents its own problem and must be treated accordingly. The experience of others, however, with similar conditions, is often helpful in guiding the commercial executive or merchandising manager in choosing a policy to suit his own locality.

From time to time articles dealing with co-operative methods of selling have appeared in the columns of Electrical West. Now comes another and seemingly quite successful co-operative activity which has features unlike many others and well worth the consideration of the industry.

The Washington Water Power Company, according to Lewis A. Lewis, sales manager, has inaugurated a plan recently which not only enlists the assistance of the local merchandising outlets for appliances, but helps to put them on the same footing as far as time-payment paper and terms are concerned. This plan makes it possible for the dealer to sell featured small appliances on the same terms which the power company is offering and the power company collects the deferred payment. A brief outline of the scheme as adopted by a selected group of dealers follows:

On monthly specials of small devices such as toasters, percolators and waffle irons, where it is considered advisable to extend the payment over a few months, a small carrying charge is to be added to the cash price of the appliance to be sold. The dealer sells the appliance at the same price and terms established by the power company. The first payment is then paid to the dealer and on the sales ticket the dealer stamps "the monthly payment to be paid to The Washington Water Power Company with your monthly electric light bill."

This ticket is sent to The Washington Water Power Company, which credits the dealer immediately with the cash price of the appliance sold, minus the initial payment. The power company accepts all sales made and in the event it is unable to collect the amount due the account is turned back to the dealer and he is charged with whatever deficit remains.

Out of this arrangement the dealer immediately gets the cash price out of his appliance and the company receives whatever is added for time-payment carrying charge. This amount is but a fractional part of what it would cost the dealer to collect his own bills.

ON this page are reports of two co-operative movements for the selling of electrical appliances. One is in Spokane, Wash., where the power company makes it possible for the dealer to sell specials upon the same basis as the company. The other is in Portland where power companies and dealers advertise special appliances jointly. Each will deserve study in the interest of industry selling of the electrical idea in competition with other industries for its share of the consumer's dollar.

"We believe that by stamping across the face of the bill that the deferred payments are to be paid to The Washington Water Power Company, together with an oral explanation of it when the sale is made, we will experience a minimum amount of trouble in collecting these amounts from the customer," says Mr. Lewis.

As an added incentive for the dealer to push these monthly specials, the power company offers the dealers the same appliance that it is featuring at practically its cost price. The dealer pays cash when purchasing and agrees to return all unsold appliances at the close of the campaign and for the price paid.

"The company realizes that the only way to increase the kw.-hr. consumption in residences, which is now quite high—namely 676 kw.-hr. per residence per year—is by the concerted action of everyone in the popularizing of current consuming devices," says Mr. Lewis. "While such an arrangement might tend to decrease the personal sales of the company, it will undoubtedly increase the kw.-hr. consumption. If this plan works out satisfactorily with the smaller devices it will probably lead to a similar arrangement with larger equipment."

Electric Toasters
for
BETTER TOAST
MARCH is national electric toaster month!
Every dealer whose name appears in this advertisement will have standard, fully guaranteed electric toasters to offer you at attractive prices.
The delicacy of crisply browned toast . . . served fresh and hot . . . the convenience of making it at the table . . . scores of tasty dishes served on toast . . . yours to enjoy with a good electric toaster!
See the Modern Toasters at Any of These Dealers
Terms if Desired.
Domestic Engineering Co.
Edwards Furniture Co.
J. K. Gill Co.
Grand Electric Co.
Henry Jenning & Sons
E. L. Knight Electric Co.
Lipman, Wolfe & Co.
Meier & Frank Co.
Morrison Electric Co.
Northwestern Electric Co.
Olds, Wortman & King
Portland Electric Power Co.
Roberts Bros.
Stubbs Electric Co.
M. J. Walsh Electric Co.
There is no Substitute for ELECTRICITY

One of the advertisements run during toaster campaign month by the combined electrical dealers in Portland, Ore.

Co-operative Advertising Tried in Portland

Fifteen or more heads of electrical departments of department stores, hardware store men, power company men and electrical dealers meet each week, Tuesday evening, in Portland and over the dinner table in the interests of bettering electrical merchandising sales. Under the leadership of the Portland Electric Power Company these men have been working together to push sales of appliances using the N.E.L.A. schedule as a basis for their effort.

This informal organization has its president and secretary but has no by-laws or any formal purpose. Inter-industry difficulties are ironed out and many subjects of mutual interest are discussed.

As a practical co-operative effort sales plans and methods for featuring appliances for a month under the N.E.L.A. schedule have been worked out and a series of advertisements run in the papers. The results have been very satisfactory although the cost to individual members is small. One department store reported that in February it sold 157 waffle irons whereas in former years 40 waffle irons were the maximum. The February sales equaled the previous year's total sales of this appliance. Other merchants indicate that featured appliances have been doubled in sales over their previous years' record.

Tombstone effect used in window display of washers which stopped the crowds.

"Brighten the Corner Where

How the Woods Brothers Make the Best of

TWO brothers drove 800 miles from Redding, at the northern end of the State of California, last October, to attend the Electragists' convention at Riverside. They had never been south of the Tehachapi before and had no idea the state was as large, but once there they absorbed every idea which was offered.

Tom and Al Woods, owners of the Shasta Electric, are like that. They will go a long way and to considerable expense to get an idea, a means of improvement, something which they can use in their business.

To them business is something to be won with ideas, with new methods of attack, with new views of old problems. Their little business in all particulars is built upon that sort of plan. Redding isn't a very large place; it has perhaps 3,000 population.

"There aren't very many homes built up our way a year," says Al Woods, "so we have to sell them everything there is."

Where many contractor-dealers would be content to drift along under such circumstances, these two men regard the situation as a challenge to their ingenuity.

It is interesting to see how this has developed unique plans and methods in connection with their store.

A "Homey" Store

The Shasta Electric Store is not a large nor is it an ornate place of business. It has a "just folks" atmosphere which somehow gives the impression that ordinary people could use electric appliances after all. It is clean and well kept but it isn't fancy. Appliances are on plainly painted tables or simple shelves, where they can be handled and seen. The wrapping counter and office desk are at the rear so that anyone entering must go back among the appliance tables.

The wrapping counter is surmounted by a lamp display arch on which each lamp can be tried by screwing it slightly in its socket. A small tag gives its size and price. Below the counter top is a display shelf, illuminated from a cove, upon which featured appliances can be placed.

Small Windows But—

Tom Woods chafes under the limitations of his windows. Yet he has made the most of what the village carpenter built into that store. Some day he hopes to build a new store. When he does the windows will be its most important feature.

"You have to sell from your windows," says Tom Woods. "When we have a new store our windows will be deep, deep enough for three separate displays in each."

As it is the Woods brothers have deepened one window by the simple process of extending its platform deeper into the store. The platform in this window is only 6 in. above the floor. An extra section added to the rear, the walls draped and a canopy overhead have made a deep semi-enclosed window space, which, with spotlighting, can be very effective in the display of large appliances, radio, refrigerators, etc.

As the front door is opened this canopied space, usually made attractive as a reception room, invites the public to enter it and give closer attention to the articles displayed there.

From this window last winter a complete line of Radiolas, from the lowest priced to the most expensive models—which these merchandisers had taken on as a sort of spur to their Christmas selling—were sold.

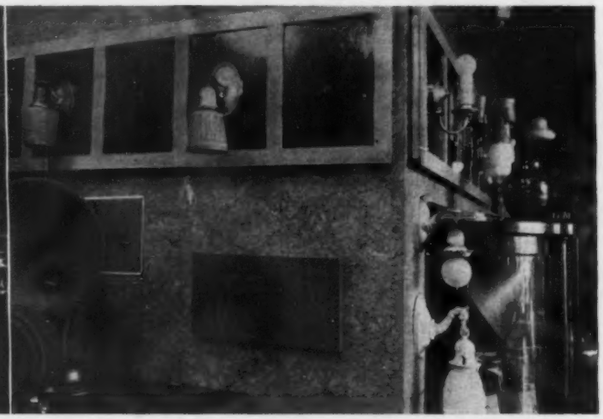
It was from this window also that the graveyard washing machine stunt was tried so successfully. In the window a new-made grave was simulated with a tombstone as shown at the top of this page. Near it was a washing machine. The inference that hard work and hard washing had killed the wife of Hiram Green, was too plain to be ignored. Mr. Woods says that 98 per cent of the people passing were stopped by the display and took time to look at it carefully. There were many sales directly traceable to this display.

The other window, with a platform at window level, is smaller. It is used to feature small appliances, lamps, small radio and the like. The Woods brothers have won national contest prizes for some of their displays in this diminutive window.

Demonstrating Lighting Fixtures

No less ingenious is the method of displaying fixtures. The ceiling of the store is used to hang these fixtures. Indeed the lighting of the store is done with them, but in order to display each fixture individually these two have devised a small bakelite panel in which are set a number of copper .22 cartridge shells. Each shell is connected to a fixture. Four plugs are provided. As each plug is inserted in one of these shells its particular fixture lights up.

Interior of Woods brothers' store, Redding, where most is made of small space in which to display appliances.



To control each fixture separately the panel on the wall is used, by changing the pegs from hole to hole.

They Are"

Every Business Opportunity

The Idea File

Whence come these ideas? Are they all original? Most of them are. Yet many are stimulated or inspired by the ideas or methods of others. And most of these other ideas—because Redding is a long way from metropolitan centers, and besides the Woods brothers are too busy developing their daily business—must come from technical and trade magazines, catalogs and literature provided by the manufacturers.

Whatever other dealers may do or not do with such material, the Woods brothers make use of it.

Tom Woods is emphatic on this point.

"Twenty-five per cent of all retail merchandising is lost," he says, "on account of lack of proper information about the product. A man comes into the store and asks something about an appliance. The dealer doesn't know, but says, 'Just a minute, I'll look it up for you.' He starts rummaging around to find the pamphlet or data he wants. Meanwhile the customer stands on one foot and then on the other and finally tires and says, 'Never mind, I'll be in later.' But he doesn't come back, he has gone, and the sale which could have been made is gone too.

"The trouble with most dealers is that they have too much material and don't know enough about it."

At the Shasta Electric the girl who takes care of the books and the store also maintains a file of clippings. Into this file goes anything which Al or Tom Woods considers worth keeping for information or ideas.

As the technical and trade magazines come in they are scanned through rather thoroughly, even if not read. If anything looks as if it contained an idea, it is clipped or the page ripped out and filed.

The tombstone window display idea was the result of this method. Seeking a window display idea for washing machines, Mr. Woods found in his file a clipping from a trade magazine which told of a similar stunt used elsewhere. He modified the idea to his means and facilities and made profitable use of it.

The clipping file is not limited to the editorial columns of these magazines. The advertisements are carefully scanned too and clipped.

"We find that we can get definite information about products in advertisements which we couldn't find anywhere else. Such information won't be in the catalogs for another year. All the new developments being made must be kept up with and the savings we make from keeping up to the minute often count up to quite an amount in the end," says Mr. Woods.

Reception room atmosphere built into a window on a slightly raised platform.

Careful Buying

In buying alone, the contractor-dealer can make or lose a great deal of money, Mr. Woods has found. The trend of the market, new developments in materials or appliances, changes in style and possibilities for quick turnover of some specials, are all watched.

Thus, say the Woods brothers, they were not caught with surplus radio stock when the change from direct current to alternating current sets started. Similarly they have avoided being loaded with appliances of which they could not dispose, one of the chief causes of loss to the merchant.

Seasonal Selling

In the experience of these men the seasonal factor in selling is very important. In the hot Sacramento Valley in summer, radio static noises make it inadvisable to sell radio sets. At such times refrigerators, cooker pots, and washing machines are pushed. In winter radio is featured along with electric heat.

Before Christmas, in addition to all appliances, toys are carried. The Woods brothers have succeeded in keeping their store the center of buying for electric toys, such as trains, small motors, electrically driven engines, toy ranges and irons, etc., by carrying also a number of staple lines of toys and wheel goods. This is profitable business, they have found.

In the contracting end of the business they are no less active and creative.

The Shasta Electric is not a large establishment. Al and Tom Woods wisely do not wish to try and make it so, at least not before conditions warrant. By close watch of "the corners" which run up into overhead, by alertness to seize upon and develop and harness new ideas and better methods, and by seeing the business possibilties where no one else would dream to look for them, they bid fair to make good the claim of economists that small businesses can be run profitably and successfully.

Rentals Which Lead to Vacuum Cleaner Sales

When Rental Service Was Made a Regular Feature by a Denver Dealer Sales Were Increased and the Trade-In Appliance Problem Solved

"NOT only do we make money on the rental of vacuum sweepers from the standpoint of rental alone, but we also make it pay in the matter of sales," says H. L. McGovern of the Cahn-Forster Electric Company, Denver, Colo.

To electrical companies who have tried the rental game as a means of increasing their sales of electrical equipment and who have found the plan has many drawbacks which serve to cut down profits and increase their efforts, a description of the system employed by this company may be of assistance.

One of the first things to be considered is the rental charge. Should it be a dollar a day, 50 cents or 25 cents?

At one time the Cahn-Forster Company charged a dollar a day, but this was found to be too high to encourage sales, for people expected too much from the sweeper and were disgruntled because it didn't deliver as much service as they expected for a dollar. They were on the defensive immediately, and at the least little thing criticised electric sweepers in general and the make they were using in particular. In other words they weren't good prospects. However, good profit was made on the investment, for it costs no more to service a sweeper that rents for a dollar than it does to service one renting for 50 cents.

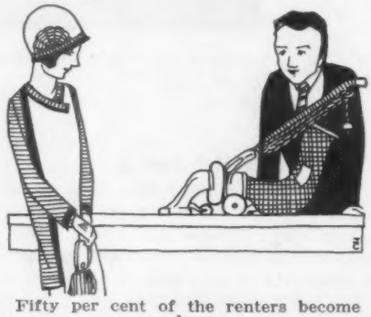
Next, the plan was tried of renting the sweepers for 25 cents, anticipating that the number of rentals would increase and therefore the number of prospective customers would increase, for this company believed that every person who rents a sweeper is a prospective purchaser.

This practice did increase the number of rental customers, but it did not lengthen the prospect list. Too many persons — transients and those who otherwise would never be in the market —were encouraged to clean house at 25 cents a day. There were about 40 sweepers in the rental department and at the price charged it didn't pay to give them much attention; in fact they were never inspected carefully for adjustments. Of course, if a bag went bad or a wire broke it was replaced, but as a rule when a sweeper was returned it was put in the pile to go out the next day. This resulted in lots of trouble. Sometimes a sweeper was taken out and it wouldn't work. That meant sending a man out to fix it or else sending out a replacement, all of which ate into the profits.

The company's next move was to raise the price to 50 cents. "At that figure we are now making money," says Mr. McGovern. "Customers do not expect as much of the sweeper as they did when the charge was a dollar, and we are making enough profit off the transactions to warrant keeping every sweeper in tip-top shape for the next rental customer.

A good many difficulties had to be ironed out before the plan was a success. This man's experience may prove useful to any merchant with this particular problem.

"We have cut our 40 sweepers down to 18 and we keep those 18 in condition to be used at any and all times. Now when a sweeper is returned it goes immediately to the service department. The boy in charge of the department only works afternoons and on Saturdays because he is going to school. But this shows how little we have to spend for labor to keep the machines in condition. The boy goes over each sweeper, inspects it thoroughly, tests it, oils it, and, as a rule, it is ready for service in 15 minutes. Sometimes, of course, breakages occasioned by carelessness on the part of the customer, mean more time in the service department.



Fifty per cent of the renters become purchasers.

"When one of our sweepers is taken out by a customer it is just as good as a new machine—in fact better if there is anything to the idea that use 'limbers' up the machine and makes it function more smoothly.

"We change our stock of rentals every six months. By that I mean that we sell off all the rentals and replace them with new sweepers at the end of six months' service. Even then, the sweepers are just as good as new machines. We sell them at a slight discount for we already have made a profit out of them in rentals." (A little mental calculation indicates that if the machine is rented every week-day in a six-months period at 50 cents a day, it would bring in nearly $75. If rented but half the time, it would have brought in $37.)

Fifty per cent of the rental customers of the Cahn-Forster Electric become purchasers, either of one of the rental sweepers or a new one. Rental customers are watched carefully to ascertain their attitude toward the machine they have used. Any favorable comment means that their names are given to the salesmen as prospects. Customers' comments are indicated on the back of the cards used for rentals.

No deposit on rentals is requested. All that is required is the customer's name and address and the first day's rental charge. Eighteen years of renting sweepers has brought but one loss from a customer getting away with the company's property. However, cards are watched very carefully. When a customer takes out a sweeper her name, address and number of the machine are written on a card. The customer signs the card, and it is then dated with a time-clock machine which indicates the day of the month and the hour of the day that the sweeper was taken out. It is due the next day at the same hour. The cards are gone over every morning and checked against the hour sweepers should be returned. If nothing is heard of the sweeper or the customer within 36 hours, a salesman is sent out to investigate.

Who are the renters? They fall into many classes. Some are transients who want to rent a sweeper for a few hours to clean up an apartment they have rented. Others are moving and need sweepers to clean up their places. Others are prospective customers inasmuch as they prefer to rent a sweeper and try it out themselves instead of being bothered with a demonstrator who may demonstrate the excellence of the machine on one or two spots in the house, but who does not give the entire house a thorough cleaning and thereby show how the machine will work under regular housekeeping conditions.

A check of rental customers shows that they will rent a sweeper three or four times a month at the price of 50 cents a day. Under no circumstances is a sweeper delivered or called for. The customer must call for it and bring it back.

Mr. McGovern attributes the success of his company with rentals to the fact that the charge has been fixed high enough to warrant keeping each rental machine in perfect condition and thereby guaranteed to give absolute satisfaction, mechanically; and not so high that the customer is on the defensive and in a critical mood.

As to Capital—

Who Stands the Best Chance of Success

¶ More newsboys have struggled to become great leaders than have pampered little rich boys. So also, more hard working men, starting with small capital, have reached business success than have those starting on a grand scale, too well blessed with finance. ¶ What is it then that makes for success?

by J. E. BULLARD

TWO men start in business. One has a large bank account; the other has practically no money. One can buy what he wants without stopping to figure out how he is going to pay for it, the other cannot.

Which of these two men has the better chance of success? It is natural to say the first man for he surely should have fewer obstacles to overcome in getting his business going. His should be the greater business success, but by actual experience this rarely has proved to be the case.

In a test of 200 business men who had never failed, had started their own businesses and had been in business twenty years or more, not one was found who started with plenty of money. Each man had started with practically nothing and an analysis of the experiences of these men indicated that the necessity of watching every penny had contributed much toward their success.

Failure after failure can be traced to the launching of a business with more money than is absolutely essential. With a large amount invested in a business it often is almost impossible to make a success. After so much money has been lost that it is impossible to recoup the losses, the owner usually gives up the business.

The man with ability who starts in business possessed of so little money he is forced to watch every penny closely seldom fails. He is forced to hold down costs to the barest minimum, which prevents him from accumulating dead stock; he must make the promptest possible collections of all accounts due, be cautious in extending credit, and thus he lays a foundation for a safe and successful business career. Lack of capital forces his adoption of sound business principles which lack of experience and more money might lead him to ignore. It may require a few years for such a man to get on his feet and put money back in his business to make it grow faster and larger, but in the end he stands a good chance of winning.

The larger each dollar looks the harder it is made to work. The more he can get out of a dollar the greater the success of any man. Hence the value of very limited capital.

There is another pitfall for the man starting a business with a large capital. All salesmen call on him. He buys from many of them. Often he overbuys. Few call on the man without capital. If he is a man of real ability he will confine his purchases to as few salesmen as possible, and if he is the right kind of man he will stick by the salesmen and the houses that give him service.

A concern now large and prosperous was started by three men with very little money. Now that it is rated high everyone seeks to sell to it, but purchases as far as practical continue to be made from those concerns that gave it credit and rendered it service when it was small and lacked capital.

Usually three or four years are enough to put out of business those men starting with plenty of money and visions of the wonderful things they are going to accomplish in a business in which they invest more than the business can stand. Too often the last accounts are never paid in full. Possibly only a few cents on the dollar are paid.

Determining the probability of success is not hard. The man who does not overbuy, who keeps complete and accurate records, always knows where he stands and what he has made or lost during the past month and is able to sell his services or his goods, is on the road to success.

It is a mistake to give first attention to capital except the capital that has been created by the business itself. Laxity in bookkeeping leads to failure regardless of the size of the initial capital. Inability to sell what one has to sell means small chance of succeeding.

Salesmanship and accounting are of far more importance in business than money.

A man who started in business with a total capital of $600 is now one of the most successful business men in his community. A first-class salesman, himself, he employed the very best bookkeeper he could find just as soon as he was no longer able to carry all the details of his business in his head. His books are now kept by a first-class accountant. All that man has to do to have more money to use is to offer people an opportunity to invest money in the business.

Another man who started as an office boy and never inherited a penny is now well up in the ranks of the richest men in America. He has been a good enough salesman to get all the money he has needed for his various enterprises.

Find a man with marked selling ability, with restricted capital, and who by means of records knows exactly what every penny in the business has accomplished, and you will find a man headed for success. That man can't help succeeding. Because he never wastes his money but keeps it working, that money grows.

True, men who start in business without capital often fail too. But such men usually fail sooner and do less damage to the general market than men with more money. Such businesses often demoralize an entire community as far as the electrical contracting or dealing business is concerned because of the longer dragging out of eventual failure, meanwhile, because of cut prices and below cost contracting, lowering the general market price of services of equal value.

Statistics show that the more money a new business has the greater the chances of loss. The less money the greater the chances of success. It is from the ranks of the men of small capital that the big business men of the future will rise. It is from the ranks of the men who start in business now with too much money that the failures of the future will be recruited if they do not give close enough attention to proper accounting and selling. The electrical contractor-dealer who will still be in business tomorrow is perhaps the man who has very limited capital today but who does know how to sell and appreciates the value of accurate accounting.

News of the Industry

Opinions at Variance in Evaluation Case

City and Two Utilities Differ Widely on Values of San Francisco Distributing Systems

A MARKED difference of opinion as to the value of the San Francisco electrical distribution systems of the Pacific Gas and Electric Company and the Great Western Power Company exists between those two companies and the City and County of San Francisco as shown by briefs filed June 15 with the Cailfornia Railroad Commission.

The Pacific Gas and Electric Company sets $67,000,000 as the value of the property which the city is seeking to acquire for the distribution of electrical energy developed by the Hetch Hetchy project. The city's figure is $18,894,005, including severance damages, $457,360. The Pacific Gas and Electric Company sets its severance damages at $27,000,000.

The Great Western Power Company has set $30,000,000 as the valuation of the properties in question, while the city believes that $9,306,537 is an equitable valuation of the same properties.

The figures given relate to the value of the properties on Feb. 11, 1924, the date the city filed its petition to the Railroad Commission "to fix and determine the just compensation to be paid by the City and County of San Francisco."

Hearings and surveys have extended over the last four years. The actual hearings have covered a period of approximately three years and numerous witnesses of national standing have testified. Among the most prominent of these are: Dr. Arthur T. Hadley, for many years president of Yale University, former professor of economics there and at present director of a number of railroads; Alex Dow, president and executive manager of the Detroit Edison Company, through whose testimony to the effect that he would have been willing to organize a syndicate in 1924 and purchase the property involved for $40,000,000, the Pacific Gas and Electric Company established the valuation of its property; and Sidney Z. Mitchell, president of the Electric Bond & Share Company, New York, whose estimate of the market value of the property on Feb. 11, 1924, has been used as its valuation figure by the Great Western Power Company.

The two companies contend that in arriving at the valuation figures a number of major factors should be taken into consideration, such as reproduction cost new; market value as it would be reflected in the remaining properties after the San Francisco holdings had been withdrawn; added difficulty in obtaining money because of the loss of the best paying part of the entire system; going concern value; revenue loss through loss of urban consumption of energy in winter when there is slack demand for energy in agricultural districts.

The companies also contend that the city's evidence does not even purport to prove the ultimate facts of the difference between the market value of the old properties and the market values of the properties remaining after the expropriation, and is based in the main upon fallacious theories of law and economics. On the other hand, the city holds that the claims presented by the companies are grossly extravagant and exaggerated and that the basic theory of damage to the remainder of the system and business is unsound and cannot be supported by principles of law applicable to eminent domain proceedings.

Both companies maintain that "the city was, and is wanting in authority to commence or maintain or prosecute the proceedings and that the Railroad Commission is wanting in authority to hear and determine the proceedings," and also that "the laws of this state do not permit the taking by the city of the properties included in its petition."

Regardless of the decision in the present case, another series of hearings must be held to determine the value added to the properties by expenditures since 1924. The expenditures of the Pacific Gas and Electric Company are said to have been between $12,000,000 and $15,000,000 and those of the Great Western Company between $7,000,000 and $9,000,000.

B. C. Company to Erect 80,000-kw. Steam Plant

Contract for the construction of the first 20,000-kw. unit of a steam plant with an ultimate capacity of 80,000 kw. has been awarded by the British Columbia Electric Railway Company, Ltd., to C. C. Moore & Company Engineers, of San Francisco and Vancouver. The plant, to be known as the Hastings steam plant, will be erected on Burrard Inlet, about one-half mile west of the second Narrows bridge, and will be used for standby service. It is expected to be completed by Sept. 1, 1930.

The normal fuel supply for the new plant will be coal, which will be pulverized before being fed to the boilers. Structural provision will be made, however, for possible future use of fuel oil.

Plans for the plant include the construction of docks, coal-handling equipment, bunkers and other facilities for receiving fuel from vessels. There will also be spur tracks at the rear of the plant for receiving railway shipments.

The present steam plant operated by the company on Main St. will be retained, so that the firm will have two stations to provide electricity in case of emergency.

Los Angeles Power Bureau Announces Budget

The Bureau of Power and Light of Los Angeles has prepared a budget of $23,125,000 for the next fiscal year. Of this sum, $7,300,000 is to be expended for extensions and betterments of the system. In the announcement officials of the department stated that this sum would have been $3,000,000 greater had it not been for the St. Francis Dam disaster, which curtailed revenue by about $1,000,000 and totally destroyed a $2,000,000 generating plant.

Included in the power bureau's budget are the following: interest and sinking fund, $3,436,000; purchase of energy (from Southern California Edison Company), $3,500,000; operation and maintenance, $4,419,000; purchase of Southern California Edison Company distribution system in recently annexed territory, $2,000,000; miscellaneous expenditures, $2,470,000. Revenues for the coming fiscal year have been estimated at $16,684,000. In addition to this it will be necessary to sell $6,441,000 worth of bonds during the year.

Women's Teams Take Part in First Aid Contest

Four women's teams participated in the Pacific Power & Light Company's annual first aid contest, which was held this year at Pasco, Wash. These teams came from the Yakima, Walla Walla, Lewiston and Hood River districts, and the scores they made in the contests were, respectively, 99.4, 99, 98.8, and 98.

First place was won by the Yakima district with both its men's and women's teams, while the Walla Walla district won second place also with both teams.

San Joaquin System Reduces Farming Power Rates

Reduction in rates for agricultural power on the system of the San Joaquin Light & Power Corporation in Merced, Mariposa, Madera, Fresno, Tulare, Kings and Kern Counties, Calif., effective April 1, 1929, has been announced by the California Railroad Commission. The reduction is the result of an agreement reached through informal negotiations between J. J. Deuel and L. S. Wing, representing the California Farm Bureau Federation, and A. Emory Wishon and Lloyd Henley, representing the San Joaquin company. The reduction, which is expected to result in a saving of $250,000 to consumers the first year, is the outgrowth of a complaint filed with the commission in February of this year by Mr. Deuel and which was set for formal hearing on June 20. The case now has been removed from the calendar by the commission. When the new rate becomes effective the San Joaquin Light & Power Corporation's agricultural consumers will have the lowest farm rate in effect in the state.

As a part of the agreement the San Joaquin company immediately will undertake the refunding of money advanced by farm consumers for the building of extensions, under the extension rule operative prior to May 1, 1924. The refunding of these advances, totaling approximately $175,000, is expected to be completed in from 90 to 120 days. Approximately 1,500 customers will be benefited by this refund.

B. C. Company Lineman Wins Life-Saving Medal

A medal recently was presented to W. E. Dubry, lineman of the British Columbia Electric Railway Company, Vancouver, by the Canadian Electrical Association for his action in saving the life of David Sutherland, who had received a severe shock from a 220-volt circuit while working in Vancouver College last August.

Mr. Sutherland was in the act of renewing a fuse on a 220-volt circuit when the line was grounded through his body to a water main, thus rendering him unconscious. He was carried from the basement of the building where the accident occurred onto the lawn. This attracted the attention of Mr. Dubry, who was working on an electric pole in front of the college, and he began to apply the prone-pressure method of resuscitation. He continued working on Mr. Sutherland about 25 minutes before the man recovered sufficiently to justify a cessation of the rescue work.

In the past the majority of medal awards have been made to employees of companies in Ontario and it is believed that Mr. Dubry is the first to receive this award in western Canada. Presentation of the medal and certificate were made by Mr. Murrin, vice-president of the company.

College of Engineering Is Formed by U.S.C.

A college of engineering, incorporating five departments—electrical, civil, mechanical, chemical and petroleum—has been formed by the University of Southern California. Philip S. Biegler, professor of electrical engineering, has been appointed acting dean.

The College of Engineering is to be opened in the fall of 1928, and it is expected that within a few months work will be started on the group of new buildings, which are to be situated at the corner of Exposition Boulevard and University Ave. In this group of buildings, which will house the laboratory, classrooms and offices of five departments of the new college, provision will be made for a student body of 500 to 600. In the main building will be housed the departments of civil, electrical and mechanical engineering, hydraulic laboratories and the departments of chemical and petroleum engineering.

To insure the maintenance of this college of engineering on a high standard of excellence and to avoid the necessity of increasing the tuition fee, the university proposes to create an endowment fund of $1,000,000 to be used exclusively to advance engineering education.

First Unit of St. Francis Plant in Operation

Unit No. 1 in the City of Los Angeles San Francisquito Canyon hydro plant No. 2 which was completely destroyed by the St. Francis Dam disaster in March, has been completed and placed in operation, according to the Municipal Bureau of Power and Light. Reconstruction of this power plant, it was pointed out by E. F. Scattergood, chief electrical engineer, required the building of an entirely new plant situated in the San Francisquito Canyon, two miles below the St. Francis Dam.

This hydro-electric generating center was swept from its foundation and entirely destroyed by the wall of flood waters. The generator and transformers are the same that were in the plant before the disaster, but it was necessary to rebuild them almost completely.

The second unit in the plant which ran for several hours during and after the flood did so much injury to itself that it will not be ready for operation for several months yet, it is reported. This rebuilding work was done in the remarkably short time of 90 days though the original estimates for the time to do the task had been set at four months.

Destruction of the plant by the flood resulted in a direct loss of approximately $2,000,000 to the Municipal Power Bureau, it was stated. Reconstruction of the plant will cost the bureau approximately $1,000,000, while the hydro-electric energy lost while the plant has been out of commission will mean another $1,000,000 loss to the municipal system.

W. A. Brackenridge Resigns Post With Edison Co.

William A. Brackenridge, senior vice-president of the Southern California Edison Company, has announced his resignation. He has been an officer and director of the Edison company since the autumn of 1909.

Following the completion of his technical training, Mr. Brackenridge was employed in an engineering capacity on

W. A. BRACKENRIDGE

the rapid transit systems in New York City, was connected with many important railroad construction projects in the State of New York, and in the investigation of engineering works in Europe. Upon his return to the United States he accepted an engagement with the Connecticut Railroad Commission, and later was associated with the board of consulting engineers then making plans for the development of the water power at Niagara Falls by the Niagara Falls Power Company. This engagement resulted in his appointment as engineer in charge of all construction by that company.

During the year 1900 he spent much time abroad in conference with foreign engineers on the design for hydraulic equipment for the Canadian Niagara Power Company. In 1904 he was appointed by the governor of New York as member of the advisory board of consulting engineers in charge of the construction of the barge canal connecting the Hudson River with the Great Lakes. During his engagement with the Niagara Falls Power Company and the canal board he conducted a private practice as consulting engineer specializing in hydraulic development.

Following the completion of a special investigation for the Southern California Edison Company in 1909, Mr. Brackenridge accepted the position of vice-president and general manager, which he retained until elected president in February, 1918. He held that office until February of 1920, when he became senior vice-president, a capacity in which he has served to the present time.

Mr. Brackenridge has stated his intention to retain his residence in southern California and continue his profession in an advisory capacity.

B. C. Company President to Head New Company

George Kidd, for many years president of the British Columbia Electric Railway Company, Ltd., Vancouver, has been made president of the British Columbia Power Corporation, which now controls the former company and all its subsidiaries. W. G. Murrin, for a long period vice-president of the British Columbia company, has become vice-president of the British Columbia Power Corporation, and A. T. B. Goward will continue to occupy a similar position with headquarters in Victoria. Sir Frank Barnard and Blake Wilson are members of the board of directors.

Mr. Kidd, who recently returned to Vancouver from eastern Canada, where he attended a conference of the new owners of the company, stated that he had been assured that the past policy and management of the B. C. Electric Company would be continued and that there was not the slightest intention on the part of the new owners of interfering in any way with the rates or affairs of the company as they have been conducted for many years.

New Line Crossing Erected by B. C. Company

A new transmission line crossing at the Second Narrows on Burrard Inlet recently has been completed by the British Columbia Electric Railway Company, Ltd.

The crossing consists of four steel-tower structures, that is, a main suspension tower and a smaller anchor tower on each side of the inlet. In addition, there is an anchorage built into the ground behind each anchor tower. The main span is 1,641½ ft. between the suspension towers, and the total distance is 2,868 ft. The clearance from the lowest wire of the main span to the surface of the water at high tide is 186 ft.

At the present time 10 wires are erected on the crossing. Six are used as conductors of two three-phase, 34.6-kv. circuits supplying power to North and West Vancouver districts and to Britannia mines. The remaining four wires are used as conductors of two privately operated telephone circuits. Provision has been made for future installation of two additional high-voltage lines and two additional telephone lines. On the two main suspension towers provision has been made for two more high-tension circuits to be used for transmission of power from Bridge River project. These two circuits will require their own separate anchor towers and anchorages.

Ornamental Lighting System Has Special Features

An ornamental lighting system with 408 standards covering approximately four miles of Wilshire Blvd., Los Angeles, and having several unique features, recently was illuminated for the first time. The unit, designed for exclusive use on this particular system, uses two lamps enclosed in the same housing. One of these lamps is of 25,000-lumen capacity, the other 6,000-lumen. The larger lamp is burned in all standards up to 12 o'clock; after that hour the smaller lamp automatically is switched on and the larger turned off. The larger lamp has a rated capacity of 1,225 watts, the smaller a capacity of 320.7 watts.

A crystal wire glass 16 x 32 in. in size is used for sides of the lantern. Wire glass was used because the demands of safety dictated that a non-shatterable medium be installed. In the finishing the posts first were galvanized with zinc and then copper-coated. This copper coating was applied by spraying molten copper on with an acetylene torch, a process which forms a coating several thousandths of an inch thick on the standards and is said to be far superior to the ordinary copper coating. The poles are allowed to weather to a natural bronze color, resulting in an attractive appearance.

Detail of lantern top of Wilshire Blvd. lighting unit, with window open showing relation of the two lamps.

Two insulating lighting transformers, one for each lamp, are located in the base of each pole for protective purposes. The main service line is rated at 6.6 amp. From the secondary side of these transformers 20-amp. independent services extend up the pole to each lamp. The cost of the installation is said to have been about $350,000 or approximately $9 a front foot. George W. Paulson, Detwiler Building, Los Angeles, was awarded the contract by the City of Los Angeles and the contract was sub-let to the Underground Construction Company, which made the installation.

Foshay Co. Opens Offices in Seattle and Spokane

In connection with an extensive expansion program, the W. B. Foshay Company, with headquarters in Minneapolis, recently opened branch investment sales offices in Seattle and Spokane. In Seattle the office will be in charge of E. R. Nye as resident manager, and the Spokane office will be managed by H. Y. Moser. Mr. Moser has been with the company's Portland organization since its beginning.

These branches, as well as those at Bellingham, Wash., Sacramento, Stockton, Los Angeles, San Diego and Pasadena, Calif., will be under the direct supervision of C. H. Burnworth, vice-president in charge of Pacific Coast sales, with headquarters in San Francisco. Announcement of establishment of Pacific Coast headquarters by the Foshay company was published in the June 1 issue of Electrical West, p. 635.

Permit for Z Canyon Project Granted by Commission

A preliminary permit for the construction of a hydro-electric plant at the Z Canyon of the Clark's Fork of the Columbia River in Pend Oreille County, Wash., has been granted by the Federal Power Commission to Col. Hugh L. Cooper and associates. Plans propose the erection of a dam 390 ft. high and a power house designed for initial installation of 300,000 hp., with provision for an ultimate installation of 600,000 hp.

Two years is provided for maximum time to begin construction and construction features must be approved by the Secretary of War, due to navigation of the stream; the Secretary of Agriculture, due to forest reserve overflow, and the Secretary of Commerce, who is interested in fisheries.

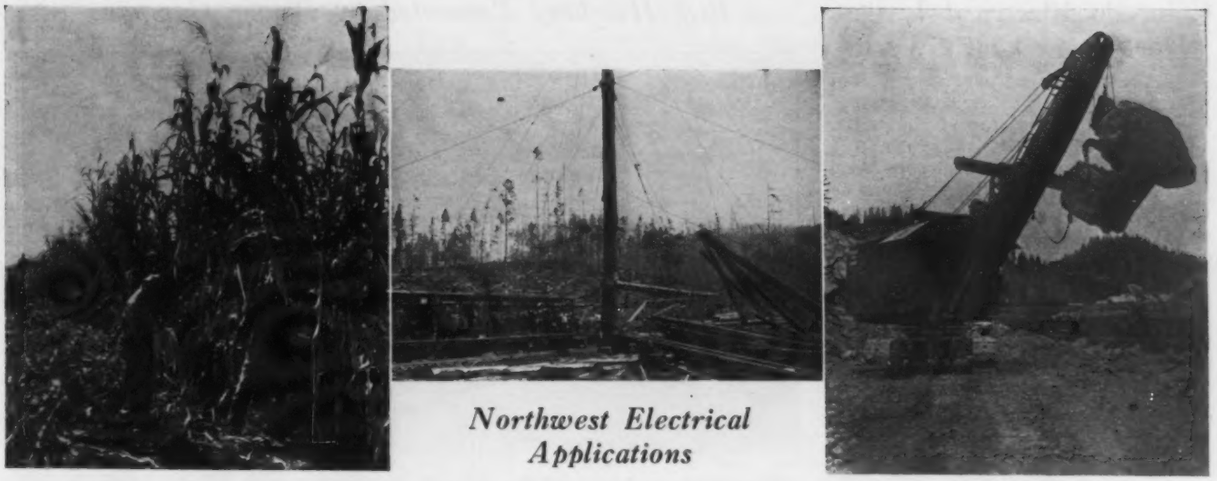
Permit has already been granted by the Washington State Department of Hydraulics.

Mountain States Co. Offices Moved Back to Albany

The moving of the general offices of The Mountain States Power Company from Tacoma, Wash., to Albany, Ore., was effected just recently. This action followed the sale of the Tacoma gas property of the company to the Washington Gas & Electric Company, Longview, Wash.

The operating and treasury departments of the company had been moved to Tacoma from Albany about two years ago to be closer to the geographic center of the company's widely separated operations, one of the more important of which was the distribution of gas in the City of Tacoma.

The principal officials returning to Albany in the present move are C. M. Brewer, vice-president and general manager, W. L. Fitzpatrick, general auditor, and John N. Adams, head of the publicity department.



Rural electrification, electric logging and railway electrification contributed to the award of the Coffin Medal to the Puget Sound Power & Light Company. *(Left)* Twenty-foot corn grown by electric irrigation in central Washington. *(Center)* Electric skidder operating in woods of a large Northwest lumber company. *(Right)* Electric shovel used in the construction of electrified section of the Great Northern Railway.

Puget Sound Power & Light Company Wins Coffin Award

Domestic Load-Building, Rural Electrical Development and Railway Electrification Are Among Achievements That Bring Prize to Pacific Coast Utility

DOMESTIC load building, rural electrical development and railway electrification were some of the principal achievements of the Puget Sound Power & Light Company that won for that organization the 1928 Coffin award. The medal was presented to A. W. Leonard, president of the company, at the National Electric Light Association convention at Atlantic City on June 6. The Puget Sound company is the second Pacific Coast utility to be honored for its "distinguished contribution to the development of light and power for the convenience of the public and the benefit of the industry." In 1923, the year the Charles A. Coffin Foundation was established by the General Electric Company, the medal was awarded to the Southern California Edison Company.

Some of the achievements of the Puget Sound Power & Light Company upon which the award was based follow:

1. The company extended its lines to 63 per cent of the farms within its territory. It now has 25,000 farm consumers.

2. It added 337 miles of rural lines and 3,700 rural customers in 1927. The company now operates 3,574 miles of line in its rural territory.

3. In its own engineering laboratory or through its agricultural expert working in co-operation with state authorities and institutions, the company has perfected a large number of electrical appliances and applications for farmers, poultrymen, dairymen, nurserymen and others.

4. In 1909 the company conducted at its own expense some of the first experiments with electricity in the poultry business and developed a successful electric brooder. Today the poultry industry in western Washington is almost completely electrified and derives 90 per cent of its service from the company.

5. Low rates established for electric cooking, water heating and other domestic uses have brought about a high domestic consumption, the 1927 average residential consumption being 763 kw.-hr., almost double the national average. During 1927 the average consumption increased 113 kw.-hr., or 17.4 per cent.

6. In the sale of electric ranges the company has established three consecutive records. In 1927 range sales totaled 8,042; in 1926, 6,105, and in 1925, 4,742. The company now serves 22,369 electric ranges or one for every four and one-half residence customers.

7. Co-operation with the transcontinental railways in establishing low rates for power has made economically feasible the electrification of two main lines over the Cascade Mountains. Both the Great Northern and the Chicago, Milwaukee & St. Paul railroads receive service from the Puget Sound Power & Light Company.

8. The company increased its gross revenue from light and power from $8,978,683 in 1926 to $10,251,720 in 1927, an increase of 14 per cent.

9. It increased the average number of residential consumers from 90,430 in 1926 to 100,380 in 1927, an increase of 11 per cent.

10. Revenue from domestic lighting, power and water heating increased 21.3 per cent during 1927. Kilowatt-hours sold to domestic consumers increased 30.1 per cent during 1927.

11. An important engineering achievement has been the successful design, construction and operation of a fish ladder for transporting salmon over the 293-ft. Baker River dam. More than 18,000 salmon were carried over the dam during the 1927 run.

12. The company has electrified every coal mine in its territory and serves many of the lumber mills and logging camps.

Power Company of Vallejo, Calif., Reduces Rates—The Vallejo Electric Light & Power Company has been authorized by the California Railroad Commission to place in effect reduced rates in its territory served, resulting in a saving to consumers of approximately $25,000 a year. This action follows informal negotiations conducted by the engineering department of the commission, resulting in the filing of an application for such reduction. Following are the new rates: Base rate 10 cents per kw.-hr., subject to the following schedule if paid on or before the tenth day of each month at the office of the company: service charge per meter per month, 50 cents; energy charge (to be added to service charge), first 200 kw.-hr. per month, 5 cents per kw.-hr.; next 800 kw.-hr. per month, 4 cents per kw.-hr.; next 2,000 kw.-hr. per month, 3 cents per kw.-hr.; all over 3,000 kw.-hr. per month, 2½ cents per kw.-hr.

Colorado Electrical League Does Good Year's Work

As a result of field work and related activities of the Electrical League of Colorado, its annual report shows the addition of 6,094 outlets, of which 4,104 have been installed on 293 completed jobs, the remainder being additions to work contracted for or actually under construction but not completed at the close of the year. A total of 2,785 calls or contacts were made during the past year on architects, builders, electrical establishments and home owners, and 260 sets of building plans of various kinds were turned over to the staff for checking or recommendations or for original wiring and lighting layouts. The total structures that received attention by the staff during the past year in regard to wiring or lighting or both amounted to 340.

The report has been prepared in a workmanlike manner and published in booklet form. Under "Field Work as an Educational Medium" several pages are given over to the main activity of the league, field service work, which, it is stated, "has been found the most effective means of carrying the message of the electrical industry to the public." In addition to the total results obtained, numerous specific instances are related showing how the league was responsible for improved installations.

At this point the report shows that since Jan. 1, 1923, the staff had made a total of 9,385 calls, with actual additions of 20,447 outlets.

The work done by the league on the Red Seal plan is detailed briefly. This included a 13-week advertising campaign in local newspapers; the mailing of Red Seal booklets to those who might take out a building permit for a residence having a value of $5,000 or more, followed by a personal call from a field representative who explained the Red Seal plan in detail; the placing of advertisements in media other than newspapers; and the distribution of Red Seal proposal forms to all contractor members of the organization. At the close of the fiscal year 79 Red Seal applications had been filed and 59 certificates issued. Of 82 Red Seal installations on which the staff actually worked, the number of outlets in 27 houses was increased from 51 per cent to 100 per cent over the original layout; in 25 houses it was increased from 26 per cent to 50 per cent; in 18 houses from 15 per cent to 25 per cent, and in 12 houses from 3 per cent to 14 per cent. The average increase in outlets over the original layout was 40 per cent. The total number of outlets added to these houses was 1,666, and the average outlet additions per house was 20.

Brief statements are given of the league's convenience outlet campaign, which resulted in putting into service 1,647 additional outlets. League officials feel justified in estimating that on an investment of less than $2,500 the electrical industry in Denver did a gross volume of business closely approximating $15,000 during the period of the campaign.

Fish Hatchery Presented by Power Company

This hatchery, built by the Pacific Gas and Electric Company along the most modern lines, has been presented by that company to the State of California for the propagation of trout. The building, 140 ft. long and 40 ft. wide, at one end is two stories high, with office on the ground floor and dwelling for attendants on the second. The plant is located on Burney Creek near its confluence with Lake Britton and water is piped from Burney Falls for the fish troughs and other uses. The plant has a capacity of one million fish per year. The cost of the building and equipment was more than $50,000.

Power Plant Output in 1927 Increased 9 Per Cent

The output of electricity by public-utility power plants in the United States in 1927 was 80,205,000,000 kw.-hr., according to the revised figures of the Department of the Interior, recently published by the Geological Survey. The increase in output from 1926 to 1927 was about 9 per cent. The amount produced by water power was about 37 per cent of the total, as against 35½ per cent in 1926.

The net importation of electricity from Canada in 1927 was 1,629,000,000 kw.-hr. The total amount of electricity from public utility sources utilized in the United States was therefore 81,834,000,000 kw.-hr. This is equivalent to 690 kw.-hr. per capita.

The accompanying table shows the production of electric power by public utility power plants in the United States in 1927 in the main divisions of the country and also in the eleven Western states.

Production of Electric Power by Public Utility Power Plants in the United States in 1927

Division and State	Total Power		Water Power		
	Kw.-hr. (Thousands)	Per cent of U. S. total	Kw.-hr. (Thousands)	Per cent of total power	Per cent of U. S. water power
United States	80,205,474	100.00	29,875,008	37.2	100.00
New England	5,470,556	6.82	1,989,386	36.4	6.66
Middle Atlantic	21,716,770	27.08	6,216,326	28.6	20.81
East North Central	18,843,349	23.49	2,409,740	12.8	8.07
West North Central	4,841,453	6.04	1,650,173	34.1	5.52
South Atlantic	8,768,076	10.93	2,998,728	34.2	10.04
East South Central	3,407,700	4.25	2,211,600	64.9	7.40
West South Central	3,315,382	4.13	66,737	2.0	.22
Mountain	3,520,047	4.39	3,033,688	86.2	10.16
Montana	1,394,655	1.74	1,381,096	99.0	4.62
Idaho	806,402	1.00	804,073	99.7	2.69
Wyoming	66,493	.08	14,689	22.1	.05
Colorado	551,173	.69	223,623	40.6	.75
New Mexico	33,462	.04	916	2.7	.00
Arizona	278,559	.35	238,771	85.7	.77
Utah	338,067	.42	320,761	94.9	1.07
Nevada	51,236	.06	49,759	97.1	.17
Pacific	10,322,141	12.87	9,298,630	90.1	31.12
Washington	2,121,939,	2.65	2,053,467	96.8	6.87
Oregon	844,654	1.05	599,229	70.9	2.01
California	7,355,548	9.17	6,645,934	90.4	22.25

News Briefs

Stockton, Calif., Considers Municipal Ownership of Electric Distribution System—The City Council of Stockton, Calif., recently authorized its power committee to expend $1,000 in preparing a technical survey and appraisal to be presented to the California Railroad Commission, looking toward the acquirement of the present electrical power distribution system by the municipality, according to recent press dispatches. Councilman Grover A. Grider, chairman of the committee, stated that announcement of the technical expert selected to make the survey will be made after the council has appropriated the $1,000. The necessary resolution covering the appropriation followed the usual course of appropriations and was laid over for one week. Stockton is served by the Pacific Gas and Electric Company.

City of Tacoma to Construct 50-kv. Line—Construction of a 50-kv. transmission line between the Cushman and Nisqually substations and the extension of distribution lines on the Tacoma tide flats to industrial plants are planned by the Tacoma City Lighting Department. An appropriation of $63,850 has been made for the work, upon recommendation of Ira S. Davisson, commissioner of public utilities. It is proposed to construct the line, which is the second one between the two substations, in order that the tide flats may be served direct from the Cushman substation without interfering in any way with the operation of the Nisqually station.

Washington City Plans Improvements to Steam Plant—The City of Ellensburg, Wash., plans improvements costing $35,000 to its municipal light plant, under direction of Glen Dunbar, superintendent of light. Plans include addition to present plant, with installation of two boilers to double the boiler capacity, together with stacks, heaters and other auxiliary equipment, to permit the operation of the present steam turbines to their full capacity of 1,000 kw.

Power Plant Stack to Serve as Aviation Guide—In compliance with the request of the Government Air Service Bureau that suitable markers be established and illuminated at night for the guidance of aviators, the stack of the Pueblo plant of the Southern Colorado Power Company is to be lighted by eight 500-watt floodlights placed in pairs at four equally spaced positions at the base of the stack. The stack, which is 14 ft. in diameter and extends 250 ft. into the air, when floodlighted will appear as an enormous aluminum cylinder.

Stone & Webster, Inc., Establishes Paris Office—Announcement has been made by Stone & Webster, Inc., that it has established an office at 2 Rue des Italiens, Paris, with Major James F. Case as representative in charge. The Paris office is prepared to make investigations, valuations and reports on public utilities, industrial plants, governmen loan projects, etc., for bankers and investors. The office also will make the company's engineering and construction organization more immediately available to European clients.

Washington Utility Buys Power Site—Purchase by The Washington Water Power Company of a power site a few miles below the City of Spokane on the Spokane River from the Spokane Valley Power Company has been announced. A head of about 80 ft. would provide an installed generating capacity of a hydro-electric development of approximately 15,000 hp. at low water. Development of the project, which was known as the "smelter site," will depend upon power requirements of The Washington Water Power Company in the future.

He Is "Red Seal Man"

A. I. Benedict, formerly in the employ of the General Electric Company in Chicago and Detroit, has become identified with the San Diego Consolidated Gas & Electric Company in the capacity of "Red Seal Man."

Municipality Plans to Build Power Plant—Preliminary to embarking on a municipal power project entailing an estimated expenditure of $300,000, Mayor D. O. Nugent and city commissioners of Centralia, Wash., have filed application at Olympia to appropriate 25 sec.-ft. of water from the Skookumchuck River in the southeastern part of Thurston County. The plan would require construction of a 24-mile pipe line, which would provide power for the electric plant and give the city added water supply. At present the city gets its electric energy from the Western Cross Arm & Manufacturing Company, under a contract which, however, may be abrogated under its terms should the city build its own plant. The city owns its distributing system and sells the current to the consumer.

Correction—In the article, "Third Party to a Riddle," giving details of the electrical installation at the Must Hatch Incubator Company, Petaluma, Calif., which appeared on pp. 608-9 of the June 1, 1928, issue of Electrical West, the name of the power company serving this hatchery was given in error as the Great Western Power Company. It should have read "Pacific Gas and Electric Company." H. G. Ridgway, division manager, North Bay Division, Pacific Gas and Electric Company, in directing attention to the error, states that the Must Hatch Incubator Company always has been served by that company.

Pacific Power & Light Company Applies for Walla Walla County Franchise—Application for a franchise for 50 years covering the territory south of Walla Walla to the Oregon line and west to and including Gardena has been filed by the Pacific Power & Light Company with the county commissioners of Walla Walla County. The company's application two years ago met with opposition and no action was taken. The places specifically named in the present application include Twin Grove Acres, Gardena, Prospect Point, all additions to Walla Walla outside the corporate limits and the Ransom Clark donation claim.

Cedar Falls Transmission Line to Be Reconstructed—The Seattle City Council has passed an ordinance authorizing and directing the Board of Public Works to call for bids and award a contract for the reconstruction of the Cedar Falls transmission line No. 1 through an increase in the size of the conductors and the purchase of the necessary new wire. For this work, on which the city engineering department is now preparing plans, the council has appropriated $53,000 from the lighting fund and $47,000 from the lighting department's depreciation reserve fund. A call for bids is expected shortly.

Idaho Town Has Whiteway Lighting System—A new whiteway street lighting installation has been completed in the town of Rexburg, Idaho, by the Utah Power & Light Company. The new whiteway system consists of 30 Novalux units of 1,000 cp. each, on cast-iron standards, and fourteen units of 250 cp. each, on wooden poles. It covers four blocks in the business district, replacing an obsolete system which had a total of about 6,660 cp.

Governor Hunt of Arizona Again to Be Candidate—Desire to serve his state in fighting against the passage of the Boulder Dam Bill prompted the decision of Governor George W. P. Hunt of Arizona to seek his seventh term as the highest executive of the state, he has stated. Governor Hunt now is serving his sixth elective term as chief state executive.

Pacific Coast Electrical Association

The women's committee of the San Joaquin Light & Power Corporation has been one of the most active committees in the Pacific Coast Electrical Association.

The committee consists of (upper row, left to right) Louise Thomson, Gladys Wright, Lura Weems, Rose Dickson, Helen Cowan, Clyda Weems; (lower row) Ann Meginity, Ethel Kelly, Nyra Letchworth, Mrs. E. A. LaMour, and Lillian Broeker.

Commercial Section Executive Committee Organizes and Plans for New Year

Definite plans for the coming year for the Commercial Section of the Pacific Coast Electrical Association were outlined at an organization meeting of the section's executive committee held during the annual convention at Pasadena.

The executive committee appointed by J. F. Pollard, section chairman, includes the following:

George T. Bigelow, commercial manager, The Southern Sierras Power Company, Riverside, vice-chairman;
Henry C. Rice, appliance sales manager, Southern California Edison Company, chairman, merchandising bureau;
Walter Carlson, Edison Lamp Works, San Francisco, chairman lighting bureau;
P. P. Pine, San Diego Consolidated Gas & Electric Company, chairman, power and heating bureau;
Ward Schafer, Pacific Gas and Electric Company, chairman, general bureau;
W. C. McWhinney, assistant general commercial manager, Southern California Edison Company;
George C. Tenney, managing editor, Electrical West;
J. W. Wrenn, appliance sales manager, Great Western Power Company;
A. M. Frost, commercial manager, San Joaquin Light & Power Corporation;
R. L. Cardiff, Coast Counties Gas & Electric Company, Santa Cruz;
F. C. Todt, Pacific States Electric Company, San Francisco;
C. J. Geisbush, state manager, California Electragists;
R. W. Turnbull, Pacific Coast manager, Edison Electric Appliance Company;
George Bailey, Pacific Coast merchandise manager, Westinghouse Electric & Manufacturing Company.

C. E. Greenwood, commercial director of the N.E.L.A., attended the organization meeting. Reporting for the National Commercial Section, Mr. Greenwood stated that the result of the consumers' survey now being conducted along the lines suggested at the industry's sales conference will determine largely the activity of the national section, particularly with reference to the domestic consumer during the coming year. He reported that the regular commercial activities, such as the work of the commercial cooking committee, the industrial power committee, the industrial lighting committee and the competitive power committee, will continue. He pointed out that the increasing competition from the new and more efficient steam engine, gas engine and Diesel engine must be watched by the commercial men in the electrical industry. He stated that the national section plans to organize along the same lines as the P.C.E.A. Commercial Section with three vice-chairmen in charge of three different bureaus. He said that one of the lighting committees is preparing a manual featuring outdoor and decorative lighting and advertising, and that the monthly coordinated appliance campaign will be continued throughout the coming year.

The following program of work for the various bureaus and committees of the Commercial Section was adopted by the executive committee:

Power and Heating Bureau

Industrial Heating Committee—This committee will prepare a program for one meeting and will participate in the Western States Metal and Machinery Exposition and Western Metal Congress to be held in Los Angeles during the week of Jan. 14.

Agricultural Power Committee—This committee will complete the handbook on Agricultural Power Applications for use of power salesmen.

Competitive Power Committee—This committee will study and prepare reports on competitive installation and on the sales tactics of manufacturers of competitive equipment.

Merchandise Bureau

Appliance Committee—This committee will be divided into two sections, one studying the sales methods employed by various distributors of motor-driven appliances and the other specializing on sales methods for heating appliances.

Electric Range Committee—This committee will continue the work of having the new range wiring standards adopted in the various communities of the state and also will conduct a survey of ranges used by power company employees.

Electric Air Heating Committee—A study will be made and a sales manual prepared on air heating installations in schools, hospitals and churches.

Commercial Cooking Committee—This committee will publish and circulate the manual on commercial cooking installations prepared last year.

Electric Refrigeration Committee—This committee plans to design and circulate through power company consumer lists literature for the purpose of selling the electric refrigeration idea.

Lighting Bureau

Domestic Lighting Committee—This committee will study the subject of refixturing to determine whether or not California central stations can benefit from refixturing campaigns.

Commercial Lighting Committee—This committee will complete the work of carrying out the four demonstration installations started last year.

Industrial Lighting Committee—This committee will study sales methods for proper industrial lighting equipment.

Airway and Airport Lighting Committee—This committee will study and report upon airway and airport lighting.

Outdoor Lighting Committee—This committee will study and report upon sales methods for decorative lighting.

Educational Lighting Committee—This committee will continue the program undertaken last year and will also co-operate with the customer relations committee in educating the employees to sell 60-watt lamps rather than 40-watt lamps for the home.

General Bureau

Customer Relations Committee—This committee will prepare a booklet on the subject of customer relations that will be designed to capitalize on the potential sales ability of all power company employees. It will conduct an essay contest, and also will endeavor to place material in the various power company house organs designed to assist in selling the electrical idea to employees.

Red Seal Committee—This committee will continue its efforts to educate the industry as to the benefits of the Red Seal plan.

Contractors, Dealers and Inspectors

"Hobe" Barnes to Become Assistant to Larrie Davis in National Work

ANOTHER bright young Westerner has been called East. Hobert Winship Barnes, but always known as "Hobe," assistant field secretary, California Electragists, Southern Division, has been asked to become assistant manager of the Association of Electragists, International, with headquarters in New York City. He is to share responsibility for the administration of the association with Laurence W. Davis, general manager of the A.E.I.

With the departure of Mr. Barnes for this more important work on behalf of the electrical contractors and dealers, the California association loses one of its strongest and best equipped workers. Mr. Barnes carried into his association work an experience and training rich in the elements which make for leadership and sound procedure. Possessing an analytical mind and an abhorrence of sham or false values, he has steered the destinies of the Southern Division through many strained industry situations and brought peace and better understanding where might easily have been started actions detrimental to all branches of the industry.

"Hobe" Barnes entered the field work of the Electragists in June, 1926, following considerable volunteer activity as an electrical contractor-dealer in Pasadena where he was in partnership with his brother, Morrell Barnes, under the firm name of "Barnes Brothers." He entered the partnership in 1925 after having conducted an individual contracting business in Pasadena which he started in November, 1922, shortly after he came to California.

The "Hobe" viewpoint, which has been such a valuable asset to the Electragist organization, Mrs. Barnes—who knows him better than his contractor friends even, though she sees less of him—attributes to some interesting features of his boyhood, not so long past. She writes of him:

"He spent most of his summers while in school working on a farm owned by his grandfather in western New York. Both his mother and father were graduates of Cornell, as he is himself. At Cornell he specialized in science and mathematics and was graduated with an A. B. degree in 1917.

"His father was for many years chief engineer for the Solvay Process Company of Detroit, where Hobert attended public school. He traveled a good bit back and forth with his parents in the United States while he was quite a youngster.

"After leaving college and prior to enlistment in the United States Army, he spent some time with the Detroit Shipbuilding Company working for the United States Shipping Board, and also put in a winter with the civilian relief committee of the American Red Cross. Nothing on the war—didn't get across.

"After the war he worked for a year with the Detroit Lumber Company on the yards and docks. He first came to California in 1920 with his family and they settled here permanently in Altadena in 1922. Since then his time has been spent almost entirely (and she might have added, day, night and holidays) in the electrical business.

"As to his favorite diversions—plays piano, sings, crazy about California, hiking, mountains, etc.; interested in the Boy Scouts, for which he has been scoutmaster for five years in a local Pasadena troup."

The only additional detail furnished is that "Hobe" Barnes was born in Detroit, in 1896.

On pretext of an important policy meeting—something which he would never miss in the line of duty—his associates in Electragist activities gave him a farewell banquet at the Jonathan Club, Los Angeles, June 27. He stopped in San Francisco to confer with Clyde Chamblin, president of the A.E.I., on his way to New York to take up his new duties. His route to New York was planned through the Northwest where contact with Electragist groups will be made.

No one has been named to succeed Mr. Barnes in the Southern Division work as yet, nor is it likely that a successor will be named for some time, according to C. J. Geisbush, manager, California Electragists.

Just Before the Water Battle

A few minutes later and these gentlemen were all wet, actually, from a water battle staged between "Cy" Geisbush and Vic Lemoge on the Sacramento boat excursion of the California Electragists, Northern Division, recently. From left to right, while still dry, were Julius Gensler of Drendell, Vic Kuehn of Buzzells, George Eldridge of the Electragist field staff, Eddie Martin, vice-president, California Electragists, George Foss of Sacramento and "Cy" Geisbush, state manager.

Re-elect Officers of Los Angeles Association

J. G. English, English Electric Company, was returned to office for another year at a recent election of officers of the Electrical Contractors and Dealers Association of Los Angeles. The other officers elected were H. H. Walker, first vice-president, T. E. Doran, second vice-president, G. E. Norberg, third vice-president, and R. M. Fry, secretary and treasurer.

The trend of business in Los Angeles was discussed at the election meeting by H. W. Barnes, secretary, Southern Division, California Electragists, and C. J. Geisbush, state manager, talked on the membership activities contemplated for the month of May. Guests were: Fred Adam of the Frank Adam Electric Company of St. Louis; H. B. Griswold, president, and J. L. Barry, representative, of the A.G. Manufacturing Company, Seattle.

J. R. Wilson reported for the Estimators' Section, Mr. Woods for the Motor Section, and Mr. Fish on the code classes for electricians.

Knupp & Fairnie, electrical contractors, is a new firm at Palm Springs, Calif., the desert city, where they have stocked an attractive store.

W. C. Hill Electric Company, electrical contractors and oil field electrical specialists, have moved from 1010 West Manchester to 8526 South Vermont, Los Angeles.

Earl R. Naudain Electric is the new shop opened by Mr. Naudain at 114 West California St., Glendale. He is well known in this district having been a member of the **Glendale Electric Company** which interest he has recently sold out to open his new electrical contracting business.

Valley Electric Company is the new firm name of what was originally called **Pomona Fixture & Wiring Company,** located at 325 West Second St., Pomona, Calif. The management remains the same, the only change being in the name.

Motor Dealers Give Play at Stag Banquet.

A "stag" banquet for no purpose other than goodfellowship was staged by the Electric Motor Dealers' Association of San Francisco at the Clift Hotel, June 16, 1928, with the representatives of the electric motor and control apparatus manufacturers as their guests. The banquet was presided over by H. T. Adams, president of the Association, with Clyde Chamblin, president, A.E.I., as toastmaster.

"Motor Mad," "a single phase tragedy put on straight across the line without control," written by Wm. A. Cyr of Electrical West, and played by members of the association, was one of the features of the meeting.

The cast consisted of Lloyd Flatland, Globe Electric Works, as Van Slivers, proprietor of the Energetic Electric Company; K. M. Noble, Buzzell Electric Works, as Bud Figgers, his estimator and superintendent; H. T. Adams, Farnsworth Electric Company, as Hank McSwank, manager of motor and industrial sales for the Genuine Electric & Manufacturing Company; and George Katz, Peerless Electric Works, as Mr. Springer, manager of the Kant Leak Company.

Keith Noble, secretary of the association, surprised his associates with two well rendered vocal solos.

Kiefer Returns to Bureau Field Staff

Frank J. Kiefer, formerly connected with the California Electrical Bureau as field representative, from which organization he resigned to become manufacturers' agent, in August, 1926, has returned to the bureau in a similar capacity, it was announced by Victor W. Hartley, executive secretary of the bureau.

Mr. Keifer was with the bureau for three years prior to his resignation and will be welcomed back to the field work in northern California, where he is well known.

The growth of Red Seal activity is such that it has been decided to split up the northern division territory, previously covered alone by J. A. McWilliams, into two territories. Mr. McWilliams will then be able to concentrate his efforts more on a smaller territory.

The allocation of territory has not been decided definitely, but it is thought that Mr. McWilliams will have the coast territory from Salinas to Eureka, including San Francisco, the peninsula, and the north bay region. Mr. Kiefer will probably cover the east bay region and the Napa and Sacramento Valleys.

Mr. Kiefer's experience as practical electrician, superintendent of electrical construction, manufacturers' agent, and lately as lighting and appliance salesman, fits him particularly for bureau work and promotion of the Red Seal plan.

The Electric Vacuum Cleaner Shop specializing in rebuilding and servicing of vacuum cleaners of all makes has opened a new branch at 1168 West Jefferson St., Los Angeles.

The W. B. Electric Company, engineers and contractors, located at 5017 West Pico St., Los Angeles, has been opened recently by E. R. Thogmartin, formerly of Monrovia, Calif.

Vanderlips Electric Store has moved from its old location on Friar St., into new and more spacious quarters at 6328 Van Nuys Blvd., Van Nuys, Calif.

Gaylord Radio Electric has been opened by **W. L. Gaylord** at 6618 South Vermont, Los Angeles. Mr. Gaylord formerly operated the **Vermont Center Radio Shop** at 6219 South Vermont but with change of location has taken a new firm name.

C. W. Woodhouse, for several years of Coachella, Calif., has built and opened a new store in Indio, Calif., where the increased space permits the display of a complete line of pumps, radio, refrigerators and household appliances.

Magnolia Electric Company, 2587 New Magnolia, Riverside, is an addition to this district opened recently by **C. W. Voorhies,** who in addition to specialization in electric fixtures is doing general wiring and repairs.

Burlingame Electric Shop is a newly opened electric contracting and merchandising business at 2203 Fern St., San Diego, Calif., by **Carl D. Baker.**

Halvorson Electric Shop, formerly located at 212 East Second St., Pomona, Calif., has moved into a new store at 274 East Second St.

Oregon Electragists Discuss Accounting and Estimating at Eugene Meeting

DISCUSSION on estimating, costing, billing and bookkeeping occupied most of the program of a special meeting of the Oregon Electragists at Eugene, Ore., June 9, 1928. This was the third meeting of the organization since its formation last fall, and was sandwiched between the two regular semi-annual meetings provided in the constitution. Attendance at the meeting, which was about 50, showed an increase over previous meetings. Active membership reported was 32, with immediate prospects of an increase to about 40.

Two Oregon Electragists of prominence are Harry Sroufe and J. R. Tomlinson, secretary, both of Portland

Discussion of the theory on which sound estimating is done was led by W. Grasle, estimator for E. L. Knight & Company, Portland. He gave a blackboard demonstration of estimating a certain job, and the questions which followed brought out many fine points in the process.

I. W. Stoddard, Grand Electric Company, Portland, reported on the price sheets being prepared to facilitate estimating and cost keeping. He reported that 23 sheets were now ready for distribution with a few others yet to be completed. Suggestions were offered for improvement of the form in which these sheets are prepared.

Contending that the more items there are included in a bill for wiring the more opportunity there is for argument with customers as to the bill's correctness, E. L. Knight, Portland contractor, urged his hearers to try lumpsum billing instead of itemization. He described the billing system in use in his shop stating that it met with general customer satisfaction, and reduced the cost of billing.

Reporting for the Standard Forms Committee, M. A. Preisz, "Milwaukee Plan" accountant, Portland, displayed several forms prepared to meet the accounting and cost keeping needs of a contracting business. After discussion of the forms in detail, some changes were suggested and the matter referred back to the committee for completion.

A suggestion by Mr. Stoddard that the contractors in each community institute a campaign to install convenience outlets at a standard price called forth a discussion of relations with power companies and of some of the problems arising therefrom. No action by the association as a whole was taken, it being deemed advisable to leave the matter up to the contractor group in each community or locality.

Following up the action taken at the last meeting to support the movement to have an electrical code written into the proposed state building code, a discussion was had on means by which this support could be made effective. The committee charged with handling this matter was enlarged.

Berkeley Snow, Electrical West, Portland, invited to speak, discussed two trends in the electrical industry, first the tendency on the part of central station commercial departments to take the situation of the contractor into consideration in formulating commercial policies, and second the increasing commercial activity of central stations which tended to produce larger volume in the wiring business.

Books & Bulletins

THEORY OF THERMIONIC VACUUM TUBE CIRCUITS

By Leo. J. Peters, assistant professor of electrical engineering, University of Wisconsin. First edition; 6 x 9 in.; cloth bound; 256 pages; 81 illustrations. Published 1927 by McGraw-Hill Book Company, New York. Price $3.

As implied by the title, this work is devoted primarily to the consideration of circuits in which vacuum tubes are used rather than to the study of the tubes. It concerns itself only incidentally with the characteristics and constants of tubes, using them to explain and predict the behavior of the connected circuits, but not seeking to explain why a tube has certain characteristics nor how to predict either the shape of the characteristics or the value of the constants. It is thus an admirable companion book for Van der Bijl's classic work on vacuum tubes, each book covering its own phase of the subject in a manner leaving little to be desired.

Professor Peters' treatment is intrinsically mathematical, as any book must be which aims to teach the reader how to attack a problem so as to obtain an accurate and dependable answer. A knowledge of calculus and of vector algebra is essential to an understanding of the book. A number of illustrative problems are worked in the text and an excellent list of problems is available at the end of each chapter to allow the reader to test his own grasp of the subject matter covered in the chapter. The author does not attempt to point out conclusions which may be drawn from the results of problems worked or from the numerous tables containing the grouped results of many computations. Rather he shows the student how to solve for himself any problem connected with vacuum tube circuits, thus enabling the student to test the accuracy of the many unsupported conclusions so prevalent in the ordinary more or less practical book on radio communication.

The principal field of usefulness for Professor Peters' book is probably as a college textbook for senior electrical engineering students who already possess a fair knowledge of the practical aspects of radio communication.—L.E.R

STANDARDS OF THE HYDRAULIC SOCIETY

The new (fourth) edition of Standards of the Hydraulic Society comprises 80 pages, 8½ x 11 in., of subject matter profusely illustrated with charts, tables and drawings.

This publication contains sections on definitions and values, extracts from pump test codes, a revised pump classification, descriptions of different classes of pumps, instructions for installing and operating each type, technical data of various kinds including pipe friction data, both water and oil, and a comprehensive list of materials recommended for pumping different liquids. Copies may be obtained for 50 cents each from C. H. Rohrbach, secretary, 90 West Street, New York City.

ELECTRIC HEATING

By E. A. Wilcox, E.E., consulting engineer, San Francisco. Published by McGraw-Hill Company, New York. First edition, 1928; 469 pages; 152 illustrations; 133 tables, 5 x 7 in.; cloth bound. Price $5.

This book fills a long-felt need of published information regarding electric heating and presents authoritative data gathered by the author during twenty years of activity in the field of electric heating. The entire text is replete with information of unquestionable value to commercial executives, engineers, salesmen and others interested in extending and developing the use of electricity for commercial and industrial heating purposes. It gives a general perspective of the field.

Measurements of Flow of Colorado River.—Water-Supply Paper 569, recently issued by the U.S. Geological Survey, gives the results of the government's stream measurements in the Colorado River basin. In co-operation with various states and other organizations interested in the flow of the Colorado, the Geological Survey maintained during the year ending Sept. 30, 1923, some eighty stream-gaging stations, at most of which were obtained records of daily flow of the river and its tributaries, covering a great drainage basin of some 242,000 sq. miles. The report shows a flow in northern Colorado, where the river is a tiny stream, of less than 100 sec.ft. at times, while during the summer floods, caused chiefly by melting snow in the high altitudes of the headwater streams, the flow in the Grand Canyon and downward to the mouth was over 100,000 sec.ft. The report may be purchased from the Superintendent of Documents, Washington, D. C., for 25 cents.

The Romance of Power.—A 91-page (4½ x 7 in.), profusely illustrated booklet filled with information regarding industrial progress incident to the utilization of mechanical equipment. This booklet is designed for general distribution to the public where the information contained will fit in with educational campaigns. Published by the National Electric Light Association at 29 West 39th Street, New York City. Price 40 cents per copy up to 100 copies and 17.5 cents per copy in lots of 100 or more, plus postage.

Safety Rules for the Installation and Maintenance of Electrical Supply and Communication Lines.—This is Handbook No. 10 of the Bureau of Standards and comprises Part II of the fourth edition of the National Electric Safety Code. It may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 60 cents a copy.

A COURSE IN ELECTRICAL ENGINEERING

VOL. 1. DIRECT CURRENTS

By C. L. Dawes, assistant professor of Electrical Engineering, The Harvard Engineering School; member A.I.E.E. Second edition; cloth bound; 5½ x 8 in.; 489 text pages; 100 pages of problems; 397 text illustrations; 158 problem illustrations. Published 1927 by McGraw-Hill Book Company, New York. Price $4.

This book begins with the most elementary conceptions of magnetism and current flow and gradually advances to a more thorough discussion of the many types of direct current machinery and transmission devices. The treatment has been kept simple. Little or no calculus is used and the mathematics is limited to simple equations. Each theory or device is considered individually, with the idea that the student shall be able to combine the various principles into whatever special scheme or application may interest him.

The completeness of the discussions and the liberal use of figures and illustrative problems combine to make a comprehensive text which will not require an additional reference library.

The topics covered are, briefly: magnetism and magnets, electromagnetism, resistance, Ohm's law and the electric circuit, battery electromotive forces, Kirchoff's laws, primary and secondary batteries, electrical instruments and measurements, the magnetic circuit, electrostatics and capacitance, generator and characteristics, motor and characteristics, transmission and distribution of d.c. power, losses, efficiency, and operation of d.c. machinery.

This book will find its main application as a text and reference of semi-elementary character; it may be used by students not specializing in electrical engineering, and by men studying the subject in industrial schools.—W.H.A.

The Oscillograph in Electric Transients.—Bulletin No. 40, University of Washington Engineering Experiment Station. Prepared by G. S. Smith, assistant professor in electrical engineering. A 59-page pamphlet with 28 illustrations. Published by the University of Washington, Seattle. Price 50 cents.

Insulating Oil.—This is a 71-page booklet giving a complete list of references of articles dealing with insulating oil and published between the years of 1900 and 1925. This was compiled in the New York Public Library by A. W. Fyfe, Jr., of the Science and Technology Division. Published by the New York Public Library, New York City. Price 50 cents.

Better Radio Reception.—A manual on interference prevention prepared by R. J. Casey. This is a well prepared and interesting manual which might be given the title, "Home-Made Static and How to Produce or Avoid It." It contains 55 pages of useful information. Published by the Radio Manufacturers' Association, Inc. Price 25 cents.

Personals

C. A. Heinze Named President of Los Angeles Electric Club

Carl A. Heinze, distribution engineer for the Los Angeles Bureau of Power and Light, now wields the president's gavel at the meetings of the Los Angeles Electric Club.

At the age of 15 Mr. Heinze came with his family to California from Quincy, Ill. After attending the public schools in Los Angeles, in 1903 he entered the office of R. S. Masson, consulting engineer for practically all of the electric utilities of southern California at that time, as a draftsman. In 1906 he entered the employ of E. F. Scattergood, then a consulting electrical engineer in Los Angeles, now chief electrical engineer and general manager of the Bureau of Power and Light. Due to Mr. Scattergood's association with the Los Angeles Aqueduct, in 1907 Mr. Heinze became an employee of the Department of Water and Power.

His first work was in connection with the design and construction of Division Creek power plant No. 1, followed by designing and installing the electrical equipment in Cottonwood power plant,

C. A. HEINZE

of which he became chief operator. Later he was assigned to work in connection with the valuation of the distributing system of the Southern California Edison Company. Negotiations failing for the purchase of this system, in the fall of 1915 Mr. Heinze was instructed to start work on a complete electrical distributing system for the City of Los Angeles, and the initiation of this work marked his definite assignment to the position of distribution engineer for the Bureau of Power and Light, a position which he has held for the last ten years.

When war was declared Mr. Heinze, who six months previously had enrolled in the Engineer Officers' Reserve Corps, was ordered into active service, first in training camp in San Francisco, later at Vancouver Barracks, and then to Texas, where as a captain in the Engineer Corps he constructed one of the largest cantonments used in army service. He served for more than a year abroad, first with the British army, then with the French, and later with the American.

Before the close of the war he had been promoted to the rank of major in the Engineer Corps. In June, 1919, he returned to his former post of district engineer in the Power Bureau.

In addition to the duties of his position, Mr. Heinze finds time to take an active part in outside affairs. He is past president of the Los Angeles Chapter of the American Association of Engineers, past president of the Los Angeles Section of the American Institute of Electrical Engineers, and has always taken a prominent share in the activities both of that organization and of the Los Angeles Electric Club.

E. W. Nilsson, formerly connected with the Los Angeles office of the Westinghouse Electric & Manufacturing Company, has been transferred to San Francisco to take up the duties of advertising manager for the company on the Pacific Coast. **L. C. LaMont**, also formerly of the Westinghouse office in Los Angeles, likewise has been transferred to San Francisco. For the past year Mr. LaMont has been third vice-president of the Los Angeles Electric Club, and Mr. Nilsson was chairman of its fellowship committee.

W. H. Davie, vice-president, Allied Industries, Inc., San Francisco and Los Angeles, has been making a trip through the East visiting various factories. He is expected to return in the forepart of July.

D. G. Tyree, manager of the investment department, California Oregon Power Company, Medford, Ore., has been elected president of the local Lions Club, and **Herbert Edmonds**, manager of the company's Dunsmuir district, is the newly elected president of the Dunsmuir Lions Club.

A. E. Vieau, Northwest district sales manager, Crouse-Hinds Company, with headquarters in Minneapolis, paid a visit to Denver not long ago.

Miss Ethel Penso has been elected chairman of women's affairs, Pacific Gas and Electric Company, San Francisco.

Henry R. Stevens, formerly of Thebo, Starr & Anderton, has opened offices at 625 Liggett Building, Seattle, as a consulting electrical engineer specializing in the supervision of large electrical installations.

R. H. Taber, of the record department of the San Diego Consolidated Gas & Electric Company, accompanied by his family, is making a visit to England. He is expected to return about Aug. 1.

D. L. Scott, director of public relations, Los Angeles Gas and Electric Corporation, was one of the speakers at the Electric Building Review held recently in San Diego. He spoke on the subject, "From the Inside Looking Out."

G. C. Ward Receives Second Honorary Degree

For the third time within three years a signal honor has been given **George Clinton Ward**, executive vice-

GEORGE C. WARD

president of the Southern California Edison Company, who received the honorary degree of Doctor of Science at Oberlin College on June 19. This degree has been awarded only eight times by Oberlin and was conferred on Dr. Ward in recognition of his work in applying the results of scientific research to the field of electrical and mechanical engineering.

One year ago Dr. Ward was given the honorary degree of Doctor of Engineering by the University of Southern California. In 1925 he was the recipient of a bronze medallion which was presented by the United States Chamber of Commerce upon the completion of the famous Florence Lake Tunnel in the high Sierra.

Dr. Ward began his engineering career in New York State on various projects. As chief engineer for the Raquette Lake Railway he attracted the attention of Collis P. Huntington and as a logical sequence became associated with the late Henry E. Huntington in connection with his work in southern California. Since 1900 Dr. Ward has been interested in electrical projects in southern and central California, the Big Creek-San Joaquin River development of the Edison company being his best known work.

F. N. Rush, former chief engineer, Southern California Telephone and Telegraph Company, Los Angeles, has been appointed vice-president and general manager of that company. He succeeds **N. R. Powley**, who recently was made operating vice-president of The Pacific Telephone and Telegraph Company, with headquarters in Seattle. Mr. Powley takes the place of **Col. A. H. Griswold** who has resigned to become vice-president of the International Telephone and Telegraph System, with headquarters in New York.

George Campe, distributor for Copeland Products, Inc., in northern California, recently paid a visit to the factory in Detroit.

P. S. Biegler Acting Dean of New Engineering College

Philip S. Biegler, for the past five years professor of electrical engineering at the University of Southern California, is acting dean of the College of Engineering which was created recently at that institution.

Professor Biegler brings to his new position a wide technical and educational experience. His early practical electrical training was gained with the Commonwealth Edison Company, Chicago, where he spent three or more years in the various statistical, operating, testing and engineering departments. Later he joined the organization of The Washington Water Power Company, Spokane, working on the electrical design of the Little Falls plant, and also spent the summer of 1913 with the same company on transmission line calculations under the supervision of V. H. Greisser, chief engineer.

Prior to his becoming a member of the staff of the University of Southern California, Professor Biegler had thirteen years of teaching to his credit. From 1906-1909 he was instructor and professor in electrical engineering at the University of Iowa; from 1910 to 1911 he held the post of assistant professor of electrical engineering at Purdue University. For the next two years he was professor of electrical

PROF. P. S. BIEGLER

engineering at the University of Montana, and then went to the University of Illinois where from 1913 to 1918 he served as assistant professor of engineering. For three years, from 1918 to 1921, he foresook the educational field for that of journalism and served as associate editor of Electrical World in New York City. At the end of that time he joined the State College of Washington as assistant professor of electrical engineering and remained there until 1923 when he joined the faculty of the University of Southern California.

He is a member of the American Institute of Electrical Engineers, is past chairman of the Urbana Section, is now chairman of the Pacific Coast division of the student activity committee, and a member of the executive committee of the Los Angeles Section. He has membership also in the Society for the Promotion of Engineering Education, the American Association of University Professors and the Engineers' Club of Los Angeles.

Al C. Joy, manager of the publicity and advertising department, San Joaquin Light & Power Corporation, Fresno, has been transferred to San Francisco as a member of the staff of **A. Emory Wishon,** vice-president and general manager of that company and the Great Western Power Company. Mr. Joy will continue to be in charge of publicity work in Fresno and will retain his office there, but his duties will be greatly increased and his scope widened to include the Great Western organization. **Fred C. Foy,** formerly editor of the Daily Californian at the University of California, has been added to the staff of the publicity department in Fresno.

Robert Linscott, Oroville, Wash., has been named to succeed **G. L. Moanore,** plant superintendent of The Washington Water Power Company at Oroville. Mr. Moanore has been transferred to Little Falls, where he will succeed **I. A. Spinks,** resigned.

Frank van Gilluwe, of the Pacific States Electric Company, Los Angeles, has been elected vice-chairman of the Joint Technical Societies.

John Swaney, Jr., B. C. Bell, and **A. W. Skelton** are managers, respectively, of the investment sales offices of the W. B. Foshay Company in Los Angeles, Stockton and San Diego, Calif.

Capt. L. F. R. Glover, general executive assistant, British Columbia Electric Railway Company, Ltd., Vancouver, was the principal speaker at the recent regular monthly luncheon meeting of the transportation bureau of the Board of Trade of that city.

J. B. Ledlie, superintendent, Mesilla Valley Electric Company, Las Cruces, N. M., attended the annual convention of the National Electric Light Association at Atlantic City and then visited the headquarters of Stone & Webster in Boston and a number of other large cities in the East before returning home.

F. A. Block, of the Pacific States Electric Company, Seattle, returned to that city a short time ago after spending three weeks in California.

Is Rocky Mountain District Manager for G.E. Co.

A. L. Jones, since 1926 assistant district manager for the General Electric Company in its Rocky Mountain district, has been appointed district manager, succeeding the late Robert Miller. The Rocky Mountain district comprises an area of more than 600,000 square miles and includes the whole or part of nine states. Headquarters are in Denver, with subordinate offices in Salt Lake City, Utah, and Butte, Mont.

Mr. Jones, a graduate of Cornell University with the class of 1904, began his career in the electrical industry at the General Electric Company's works at Schenectady as a

A. L. JONES

special apprentice on the testing floor. Two years later he was advanced to the industrial engineering department where he remained until 1909 when he was transferred to Denver as district engineer. His work in this position, which he held for seven years until he was made assistant district manager, has made him very well known to the members of the electrical industry in the Rocky Mountain territory. Mr. Jones is a member of the American Institute of Electrical Engineers and has served as chairman of the local section.

Obituary

D. J. Broderick, hydraulic engineer who superintended construction of The Washington Water Power Company's dam on the Similkameen River, was killed in an automobile accident May 26.

Joseph K. Choate, chief engineer for the J. G. White Management Corporation, New York City, died June 19 in San Francisco of broncho-pneumonia. He was 74 years of age.

Harry Trevorrow, for the past eight years traveling salesman for the Mine & Smelter Supply Company, with headquarters in Colorado Springs, died recently in that city.

Joseph F. Halloran, former publisher of the Mining and Scientific Press, died in Berkeley, Calif., June 3, at the age of 77. Mr. Halloran was the father of Arthur H. Halloran, publisher of Radio and president of the San Francisco Electrical Development League.

Russell J. Ellis, for nearly twenty years a member of the San Diego Consolidated Gas & Electric Company's organization and for fifteen years superintendent of its meter reading department, died recently in that city.

Meetings

Coming Events

American Institute of Electrical Engineers—Pacific Coast convention at Davenport Hotel, Spokane, Aug. 28-31, 1928.

Association of Electragists, International—Annual convention in Chicago, Aug. 6-10, 1928.

Camp Co-operation VIII—Electrical Leagues' conference at Association Island, Henderson Harbor, N. Y., Aug. 2-7, 1928.

Rocky Mountain Division, N.E.L.A.—Colorado Utilities Association—Joint annual convention at Hotel Colorado, Glenwood Springs, Colo., Sept. 17-20, 1928.

Los Angeles Electric Club Installs Officers

With appropriate ceremony on June 25 the Los Angeles Electric Club installed its new officers, recently elected to serve for the coming year. Ben G. Wright, retiring president, was master of ceremonies.

The incoming officers are: president—C. A. Heinze, Bureau of Power and Light; first vice-president—F. J. Airey, Pacific States Electric Company; second vice-president—Frank Weiss, Los Angeles Gas and Electric Corporation; third vice-president—H. L. Doolittle, Southern California Edison Company; secretary-treasurer—D. M. Trott, Southern California Edison Company; sergeant-at-arms—Carl Buratti, Johns-Manville Corporation.

The executive committee is composed of Ben G. Wright, Southern California Telephone Company; Fred E. Geibel, Pacific Electric Railway; E. M. Ellis, General Electric Company; A. E. Hitchner, Westinghouse Electric & Manufacturing Company; and Roy Foulkes, Foulkes Electric Company.

Seattle Electric Club Holds Annual Golf Tournament

The fifth annual golf tournament of the Seattle Electric Club for the Harry J. Martin Cup, recently was held at the Olympic Golf and Country Club. Competition was medal play with full handicap allowance.

Tom S. Wood, of the Packard Electric Company, came in winner. J. J. Agutter, of J. J. Agutter & Company, was second, winning the sweater given by the Puget Sound Power & Light Company; and Walter Funfsinn, of the Seattle Lighting Fixture Company, won third place and was awarded the duffle bag donated by the Pacific States Electric Company. This is the second time Mr. Wood has been the winner in the tournament, having won the cup the first time in 1925.

Three winners of former Seattle Electric Club golf tournaments and the cup donor—(*Left to right*) Harry J. Martin, of the National Carbon Company, who presented the trophy; J. J. Agutter, of J. J. Agutter & Company, who has one leg on the Martin cup; Tom S. Wood, of the Packard Electric Company, who has just won the trophy for the second time; and Reno Thatcher of the Puget Sound Power & Light Company, president of the Olympic Golf and Country Club, and winner of last year's tournament. Mr. Thatcher is holding the Martin cup. The next group includes (*left to right*) Frank Steele, of Steel & Phelps; Sam Hepler, of the Arrow Electric Company; F. W. Rust, of F. W. Rust, Inc.; and C. A. Marten of the Graybar Electric Company.

Special prizes were donated by the Pacific States Electric Company, Puget Sound Power & Light Company, Eicher & Bratt, M. E. Pierce, John A. Roebling's Sons, Graybar Electric Company,

Les Rubles of the North Coast Electric Company, and R. M. Boykin, manager of the Central Division, Puget Sound Power & Light Company, and president of the Seattle Electric Club.

National Lamp Works, the City Lighting Department and Mr. Rautenberg.

Preceding the tournament the regular club luncheon was held in the Olympic Club dining room.

Electrical Supply Jobbers Adopt New Name—At the annual meeting of the Electrical Supply Jobbers Association held recently in Hot Springs, Va., it was decided to adopt the name "National Electrical Wholesalers Association" as a more appropriate title for the organization.

Great Northern Railroad Electrification Described—An illustrated address describing electrification of the Great Northern Railroad across the Cascade Mountains in Washington was delivered on June 5 before the Spokane Electric Service League by A. W. Eshelby, electric transportation expert of the Westinghouse Electric & Manufacturing Company's staff.

Bay Cities Chapter I.E.S. Holds Election

Election of the San Francisco Bay Cities Chapter of the Illuminating Engineering Society held recently in San Francisco resulted in the choice of the following official personnel for the new administration year: president—Joseph Mundstock, The Frink Company; vice-president—Carl Martin, Benjamin Electric Manufacturing Company; secretary-treasurer—William Hanbridge, Pacific Gas and Electric Company.

The board of managers is composed of C. D. Monteith, Pacific Gas and Electric Company, who is retiring president; Clark Baker, National Lamp Works; and J. F. Cravath, consulting engineer.

Window Display Men Witness Demonstration of Model Window—The first showing of an improved model window to demonstrate proper lights was made by Ladner V. Ross, illumination engineer of The Washington Water Power Company, Spokane, before a meeting of the Spokane Window Display Men's Association recently. The model demonstration includes elimination of plate glass reflection, proper application of color lighting, correct use of daylight lamps, and the methods of eliminating distortion of merchandise through the proper usage of color lighting. A convenient control board is used to show improper and proper lighting.

Illuminating Engineers to Hold International Congress—Announcement has been made by the Illuminating Engineering Society, New York, that an International Congress on Illumination to bring together the leaders in the field of lighting from all parts of the world is to be held in the United States in September. The international congress will open on Sept. 7 with a tour by the foreign delegates to various American cities, will include the twenty-second annual convention of the Illuminating Engineering Society at Toronto Sept. 17-20, and close with the eighth session of the International Commission on Illumination to be held at Saranac Inn, N. Y., from Sept. 22 to 28, inclusive.

Manufacturer & Distributor

Jones-Lyman & Co. Is New Name of California Firm

Formal announcement has been made of the change in corporate name of Jones-Thorne & Company, Inc., to **Jones-Lyman & Company, Inc.**, and the affiliation with the company of Oliver B. Lyman of San Francisco, who will be in active charge of the company's business in that district. The present offices of the company will be maintained in the Russ Building, 235 Montgomery St., San Francisco, and in the A. G. Bartlett Building, 215 West Seventh Street, Los Angeles. Emmett H. Jones, president of the company, will continue as executive in charge of the company's business in southern California.

Among the companies represented by Jones-Lyman & Company, Inc., are: American Circular Loom Company, American Copper Products Corporation, British American Tube Company, Inc., Burke Electric Company, Cook Cedar Company, Cyclops Steel Company, Pittsburgh Piping & Equipment Company, R. D. Wood & Company, Cleveland Brass Manufacturing Company, and the Gross Lead Burning & Coating Corporation. In addition, the company is representative in northern California of the I-T-E Circuit Breaker Company, Sundh Electric Company, Atwood & Morrill Company and the Bartlett Hayward Company, and also acts as agent for the Okonite Company in southern California.

G. E. Company to Electrify Mine Haulage System

The **General Electric Company**, Schenectady, N. Y., has received an order from the Utah Copper Company covering the electrification of the haulage system on its mining properties in Bingham, Utah. Following a test of about a year with a trial installation of 75-ton combination storage battery, trolley and cable reel locomotive built by the General Electric Company, the Utah Copper Company has decided on an initial installation of twenty locomotives of similar type to be put in operation as early as possible.

Additional locomotives will be built by the General Electric Company and put in service later. Of the first twenty locomotives, however, two only will be equipped with storage batteries as was the original trial unit, the remainder omitting this accessory and drawing power from overhead and side-arm pantagraph trollies, or from trailing cable. Power for the locomotives will be supplied from two substations, also to be constructed, and an extensive electrification system will be necessary for distribution to the points where this power will be needed.

With the completion of the electrification of the hauling system all the Bingham mining properties of the company will have been electrified.

Spokane Manufacturers' Association Elects President—E. A. Johnston, president of the **Brown-Johnston Electric Company**, Spokane, has been elected president of the Manufacturers' Association of Spokane. He was formerly vice-president. Mr. Johnston spent the month of June on a business tour of the Middle West and East.

Radio Distributors' Convention—The convention of the Northwest Atwater-Kent radio distributors to be held in Seattle in the month of August is expected to be attended by radio distributors from Washington, Oregon and Idaho. **The Sunset Electric Company** is the Seattle distributor.

Electrical Apparatus Contract Awarded—The Weyerhaeuser Forest Products has awarded to the Seattle branch of the Westinghouse Electric & Manufacturing Company an initial contract for electrical apparatus to be used in connection with the construction of its lumber mill at Longview, Wash. The contract calls for furnishing and installing two 7,500-kw. turbines costing more than $200,000. It is announced that the purchasing department of the Weyerhaeuser company in Tacoma, Wash., will let contracts shortly for $150,000 worth of electrical motors for individual drive and $10,000 worth of transformers.

The Wagner Electric Corporation, St. Louis, has appointed as sales engineer, operating out of the Seattle office, Fred Carlson, formerly with Crouse-Hinds Company in that city.

Manufacturer Distributes Display Sign—Distribution of a display sign to its electrical jobbers and dealers has been begun by Curtis Lighting, Inc., 1119 West Jackson Blvd., Chicago. This sign, which measures 18 x 20 in., hangs upon a wall or rests on an easel in the show room, show window or on a showcase. A large green X-ray reflector, showing the silver corrugations inside, is imposed upon a vivid orange background. Silver and gold lettering is stamped into the sign. The display is quickly noticeable at 20 or 30 ft. and when alternating gleams of colorlight are played upon it the colors are reversed and animated.

The Sunbeam Electrical Company has been organized at Spokane, Wash., by J. W. Minnick, Guy L. Langton, W. T. Fisher, and C. E. Van Auken, with a capitalization of $190,000.

Makers Invited to Submit Motors for Test

Electrical Testing Laboratories, 80th St. and East End Ave., New York, have announced that a group of central stations within the Association of Edison Illuminating Companies has asked Electrical Testing Laboratories to keep them informed about single-phase motors of fractional horsepower sizes, more particularly the ¼ and 1/6 hp. sizes, and including the repulsion-induction, split-phase, and condenser types. Each manufacturer of such motors is invited to ship to Electrical Testing Laboratories one or more representative samples of his product for purposes of this test. If the manufacturer desires to obtain a copy of the test report, he may do so upon payment of $25 per motor when the motor is submitted. If he does not desire to have a copy of the report, he may submit a motor without making a payment, in which case the motor will be tested and the results will be reported to the subscribing central stations. If the manufacturer does not care to submit a motor, the test will be made upon a sample motor procured for the purpose in the open market.

Particular Power Pole and Proud People

When Frank Robbins (left), superintendent of distribution for the Grays Harbor Railway & Light Company, Aberdeen, Wash., and Charles H. Cutter (right), manager of the Seattle branch of the Pacific Electric Manufacturing Corporation, decided to have their pictures taken together, they chose as the site of the crime what is said to be the most westerly power pole in the United States, or, in other words, the one closest to China. At any rate, it is as far west as the Grays Harbor company has been able to carry its new 26.4-kv. line. Mr. Cutter's cat-and-canary expression, translated, means, "We have the only air-break switches on this line."

The McGraw Electric Company, Omaha, Neb., has purchased the Clark electric water heater business from the Stoughton Manufacturing Corporation, Stoughton, Wis. General offices will be maintained at Omaha, but the manufacturing plant will be continued at Stoughton.

Truck to Make Coast-to-Coast Tour

This display truck, known as the "Hubbard Linebuilder," was shown for the first time at the recent National Electric Light Association convention at Atlantic City where it formed part of the exhibit of Hubbard & Company, Pittsburgh, Pa., Chicago, Ill., and Oakland, Calif.

There are six doors, three to each side of the truck, and six inside panels. On these panels is mounted a complete line of samples of Hubbard pole line hardware and Pierce Construction specialties. Inside the truck there are shelves and compartments for carrying literature, luggage and other miscellaneous material, including a number of loose samples and a complete set of instruments for making field tests.

A coast-to-coast tour has been planned for this display truck upon its departure from Atlantic City. This tour, which eventually will cover the entire United States, will be conducted by Hubbard sales engineers, who will have charge of the display truck while it is in their respective territories.

Make Your Own Weather

With that as the keynote, the fan display of the **Wagner Electric Corporation,** 6400 Plymouth Ave., St. Louis, makes use of weather flags to indicate lowered temperature resulting from the use of Wagner fans. The weather flag idea is carried throughout the entire advertising of the company, not only in the window displays but also in leaflets sent to the ultimate consumer.

The entire display is printed in five colors and consists of five cards ranging in size from 20 x 34 to 10 x 15, six window stickers 6 in. in diameter, and a window trim or streamer 40 in. long and 7 in. high. The material allows of many variations, the use of all or part of the display depending, of course, upon the size of the window involved.

The Eagle Electric Manufacturing Company, 59-79 Hall St., Brooklyn, N. Y., has announced that it has adopted a strict jobber policy, dealer business being turned over to Eagle distributors to handle. All catalogs and advertising literature carry the notation, "Eagle products sold through jobbers only."

The Gilby Wire Company, Newark, N. J., has announced through its representative, Belden S. Gardner, that a complete stock of the more popular sizes of resistance wire now is being carried at 144 Second St., San Francisco, for the accommodation of the California trade.

Allied Industries, Inc., with headquarters in San Francisco, has been appointed Pacific Coast distributor for Utica Products, Inc., Utica, N. Y.

The National Electric Products Corporation has been formed as the result of a merger of the National Metal Moulding Company of Pittsburgh and Economy, Pa.; of the American Copper Products Corporation of Bayway, N. J.; and of the British American Metals Company of Plainfield, N. J. Through its subsidiaries this company also holds the majority of the stock of the Habirshaw Cable & Wire Corporation with mills at Yonkers, N. Y., and Bridgeport, Conn. For the past five years Oliver B. Lyman has represented the American Copper Products Corporation and British American Metals Company as exclusive Pacific Coast representative with headquarters in San Francisco. The National Metal Moulding Company has been represented by Garnett Young & Company of San Francisco, Los Angeles, Portland and Seattle.

Copeland Silica Gel Corporation is the name of a new company recently formed to manufacture and market the Silica Gel process of commercial refrigeration. The company will operate as a subsidiary of the Copeland Products, Inc., and the machines are to be manufactured in Detroit.

The A. G. Manufacturing Company has announced the appointment of J. C. Lanahan, formerly with the Frank Adam Electric Company, as sales engineer with headquarters at 910 Howard St., San Francisco.

Educational Film—A new two-reel film, "The Vacuum-Tube Synchronizing Equipment," has been added to its free educational film service by the **General Electric Company,** Schenectady.

Lincoln Welding Contest Prizes Are Awarded

Awarding of prizes to the winners in the arc welding contest held by the **Lincoln Electric Company,** Cleveland, was made at the spring meeting of the American Society of Mechanical Engineers in Pittsburgh.

The first prize of $10,000 was won by James W. Owens, director of welding for the Newport News Shipbuilding & Drydock Company, Newport News, Va. The second prize of $5,000 was awarded to Henri Dustin, professor in the Engineering School of the University of Brussels, Belgium, and director of the Laboratory for Material Testing. Commander H. E. Rossell, Construction Corps, U. S. Navy, instructor of methematics at the Naval Academy at Annapolis, won the third prize of $2,500.

Before formal award of the prizes was made, J. C. Lincoln, of The Lincoln Electric Company, outlined briefly the purposes of the competition, which were to encourage improvements in the art of arc welding, to point out new and wider applications of the process, or to indicate advantage of economies to be gained by its use.

Prices of Mazda Lamps Again Reduced

Prices of Mazda incandescent lamps again have been reduced, effective July 1, President Gerard Swope of the General Electric Company has announced. The reductions average 14 per cent and apply to types which represent about 82 per cent of the total consumption of large Mazda lamps. This is the eleventh time that Mazda lamp prices have been reduced since 1920.

The new prices are 20 cents for the 25 and 40-watt lamps, 22 cents for the 50 and 60-watt lamps, and 35 cents for the 100-watt, as against the former prices of 23, 25 and 40 cents, respectively.

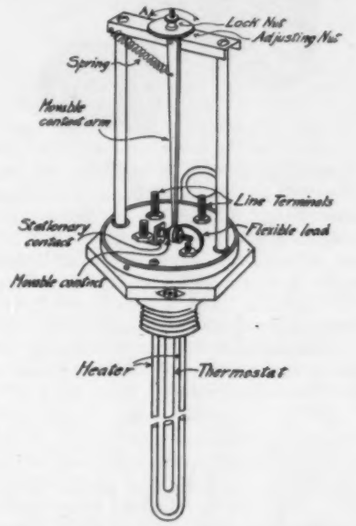
Charles E. Listenwalter, senior partner of Listenwalter & Gough, Inc., San Francisco, has announced that he has disposed of his interests in the firm to Mr. Gough. Mr. Listenwalter, who founded the firm of Listenwalter & Gough sixteen years ago when he purchased the Wade-Gough Electric Company, states that he will take a much needed rest for the purpose of conserving his health, which recently has not been good.

Curtis Lighting, Inc., Chicago, has announced the appointment of Roy D. Myers, formerly of the Northern States Power Company, St. Paul, as resident engineer for northern California with offices at 414 Foxcroft Building, San Francisco, after July 1. Mr. Myers has had charge of the Lighting Service Bureau of the Northern States Power Company, with which he has been connected for the past nine years' period. Mr. Myers succeeds Frank Hastings, who has been transferred to the Chicago office.

New Equipment

Automatic Electric Water Heater

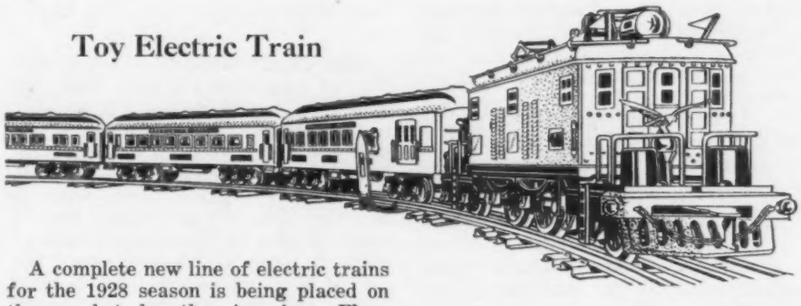
Three types of automatic electric water heaters are being offered to the trade by **Fichtner & Simon**, 505 Gough St., San Francisco. Type A is an automatic combination immersion heater which fits directly into the boiler; type NA is a non-automatic immersion heater; and type CA is an automatic combination circulation heater, which fits on the outside of the boiler. Both automatic combination heaters protect the user in two ways, the manufacturer explains: first, when the water gets hot the thermostat automatically will cut off while the water remains at the desired temperature; second, in case the heater should become clogged with scale or should run dry for any reason, the thermostat will operate to protect against burn-outs. The heaters are set at the factory to maintain a temperature of 160 deg. F. but can be adjusted easily to any other temperature.



The F & S heater consists essentially of one or more lengths of resistance ribbon spirally wound upon a flat section of mica and enclosed in a flat length of brass tubing which is connected to a cast-brass head, within which is mounted a terminal block provided with terminals and with or without thermostat, the whole enclosed in an aluminum cover. In the automatic types the thermostat extends through the brass head and within the U-shaped heater. This construction combines the heater and thermostat in one fitting, making an electric water heater that is easy to install and one that is protected against accidental burnouts, according to the manufacturer. These heaters have been approved by the Underwriters' Laboratories, and various patents have been applied for.—Electrical West, July, 1928.

Asbestos Insulated Wires and Cables—The newest product of the Rockbestos Products Corporation, New Haven, Conn., is an asbestos and varnished cambric insulated switchboard wire with a smooth outer cotton braid, which can be furnished in either grey or black. This and several other types of wire are described in a bulletin, "Switchboard Wires and Cables," recently issued by the company.—Electrical West, July, 1928.

Toy Electric Train



A complete new line of electric trains for the 1928 season is being placed on the market by the **American Flyer Manufacturing Company**, 2225 South Halsted St., Chicago. This line, known as the American Flyer Rainbow Line, includes new designs in both narrow and wide-gage freight and passenger cars, signal bridges, tunnels and stations.

The illustration shows the "President's Special," which is a reproduction of the Twentieth Century Limited of the New York Central Lines. The electric toy is a wide-gage train 100 in. long, finished in a two-tone shade of Rolls-Royce blue sprayed-on enamel and decorated with solid brass trimmings. Some of the important features include an automatic ringing bell on the locomotive, which rings steadily unless shut off; a power switch with which the current can be shut off from the locomotive allowing the lights to remain on when the train is not in motion; individual car lighting switches installed in the battery box; individual window inserts of brass; etched nameplates showing train name, car names and numbers. Steps, journal boxes, battery boxes, air tanks, handrails, and vestibule diaphragms add realistic touches.—Electrical West, July, 1928.

Gymnasium Fixture

A lighting fixture particularly suitable for gymnasiums or for indoor basket ball and volley ball courts, indoor sports arenas and similar locations, has been added to its line by the **Benjamin Electric Manufacturing Company**, 120-128 South Sangamon St., Chicago.

The unit consists of a heavy gage steel canopy and wire guard and RLM standard dome reflector. Of special design and extremely sturdy construction, it assures complete protection and longer life to the lamp wherever the lighting fixtures are subjected to frequent jars and hard knocks, the manufacturer states.

A large opening in the bottom of the wire guard permits easy lamp replacement without first removing guard. By removing three thumb set screws the guard may be completely taken off, thereby giving free access to the reflector and making possible easy cleaning of the fixture. The canopy and guard are finished in white paint enamel, and the reflector is of Crysteel white porcelain enameled steel.—Electrical West, July, 1928.

Electric Ranges in Color—Pastel shades of Alice blue, Arabian tan, Nile green, oriental yellow and coral red, set off by a lustrous background of old ivory, have been adopted for their electric ranges in color by **A. J. Lindemann & Hoverson Company**, Cleveland Ave., First to Fourth Aves., Milwaukee. The automatic temperature control used on the automatic models is direct action, operates without a relay on either d.c. or a.c., and is not affected by frequency or voltage changes. Such other distinctive features as cast-iron cooking top, door frame and legs, invisible bolts, angle-iron base band, porcelain enameled broiler pan, and drawer-type drip pan with glass knob handle have been retained in this new line.—Electrical West, July, 1928.

Manual Motor Starter—A new manual across the-line a.c. motor starter (CH-9115) is announced by **The Cutler-Hammer Manufacturing Company**, Milwaukee. Designed to meet the need for an inexpensive manual starter, it includes such advantages as overload cutouts giving complete motor protection; cadmium-plated, double-break, roller-type contacts; and small size, safety, dustproof enclosing case.—Electrical West, July, 1928.

"Ice-O-Matic" Refrigerator

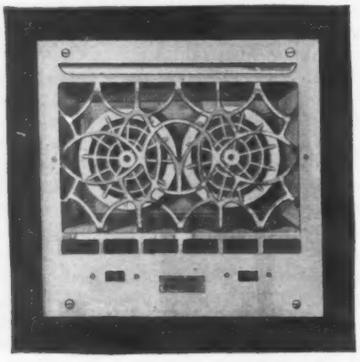
Under this title, **Williams Oil-O-Matic Corporation,** Bloomington, Ill., is placing on the market an electric refrigerator. The cabinets range from 5.5 to 15 net cu.ft. food capacity and from 82 to 114 ice cubes, depending on the style and size. All boxes have Armco steel one-piece porcelain lining, chromium plated hardware, natural white birch door jambs and maximum shelf storage space. Five-inch legs to match are provided on request.

Refrigeration specifications include: Valves—quiet, special design; eccentric shaft—drop forged steel, running in oil bath; belt—"V" section endless rubber fabric; speed—slow; refrigerating effect—10 lb. melting ice per hour (continuous operation); refrigerant—methyl chloride; motor—¼ hp., 1,800 r.p.m.; refrigerating system—flooded type; compressor control—thermostat controlling directly the temperature of cooling unit. For lubrication mineral oil is used. A patent oil trap and separator automatically returns to the crank case all oil which enters the high-pressure side. This device, the manufacturer explains, effectively prevents oil entering the cooling units and permits placing the unit above or below the compressor as desired.—Electrical West, July, 1928.

Air Heaters

Two electric air heaters, one a wall type and the other a fireplace, are being marketed by **Markel Electric Products, Inc.,** 145 Seneca St., Buffalo, N. Y., under the trade name Heetaires.

The single-element wall-type Heetaire is offered in several models of 660



and 1,000-watt capacity at $15 and $16, respectively, and the double-element wall-type models, of 1,320 and 2,000-watt capacity, are listed at $22.50 and $24.50. Either type is finished in nickel, antique brass or white porcelain.

The fireplace Heetaire, whose hot-coal effect is produced by colored glass with lights underneath and whose flame effect is made by concealed twirlers or fans, may be obtained in several different models. Equipped with two Heetaire elements under canopy top, they list for $73 and $75, respectively.

There are only two units in the assembly of Markel Heetaires: the outer case which fits in the wall and contains two layers of asbestos lining; the inner unit which fits into the outer case with the grill, reflector, heating element and switch attached. The heating element allows the maximum amount of air currents to pass through it freely, heating them to a high temperature and then reflecting them far out into the room, the manufacturer states.—Electrical West, July, 1928.

Super-Automatic Iron

An electric iron with a heat throttle has been placed on the market by the **Edison Electric Appliance Company, Inc.,** 5600 West Taylor St., Chicago. This throttle may be set at any desired temperature, and the heat will be maintained in the iron at that temperature without further action on the part of the ironer. It is unnecessary to pull the plug to prevent the iron from overheating.

Other features of the new iron are: patented Hotpoint Calrod heat element molded inside the solid iron single casting; thumb rest, which rests wrist, arm and shoulder; hinged plug, which prevents cord from wearing at the plug and guard; long-wearing cord; rigid handle; and heel stand, which relieves much of the strain of ironing due to lifting the iron off and onto the stand. List price $8.80.—Electrical West, July, 1928.

Air-Jacketed Motors—An air-jacketed motor for serving where dust, fumes and moisture are present in sufficient quantities to necessitate protection to motor and property, has been developed by the **Wagner Electric Corporation,** St. Louis. The entire motor is surrounded by a jacket open at both ends with fan blades on a shaft extension between the sealed motor and its outer jacket. The only clearance between rotating and stationary parts of the motor is in the bearing housing and here no impurities can get past the grease packing. The motors are new in external construction only; no changes have been made in the electrical principles of the motors themselves.—Electrical West, July, 1928.

Commercial Fixtures—Richly embossed bronze is the outstanding feature of a new and complete line of commercial fixtures just announced by **The F. W. Wakefield Brass Company,** Vermilion, Ohio. This will be known as the 1900 "Red Spot" line and includes chain pandants with holders from 2¼ to 8 in.; ceiling types in the same range of sizes, and wall brackets with 2¼-in., 3¼-in. and 4-in. holders. An approved adjustable hickey is utilized to facilitate hanging the pendant and sidewall types, while the ceiling type equipped with a unique and versatile strap, goes into position "like screwing the top on a mason jar."—Electrical West, July, 1928.

Attachment Plugs

A line of all "Textolite" attachment plugs has been announced by the **General Electric Company,** Merchandise Department, Bridgeport, Conn. Textolite is the company's new trade name for a strong, high-gloss compound.

These plugs, which conform to the 660-watt, 250-volt National Electrical Code Standard, may be obtained with 13/32-in round cord hole or with 9/32-in. x ⅜-in. oval cord hole in either brown or black. The bodies have deep locating slots, and all enclosed metal parts on both caps and bodies are finished in polished nickel. List price 40 cents; caps and bodies 20 cents each.—Electrical West, July, 1928.

Insulator Pins—A new series of insulator pins, known as the Locke Redhead and Locke Leadhead pins, respectively, has been developed by the **Locke Insulator Corporation,** South Charles and Cromwell Sts., Baltimore, Md. These pins consist of a cast-iron base with a steel through bolt and are intended for use with insulators having standard 1⅜-in. N.E.L.A. pin hole. The Redhead pin is for use only with insulators having perfect metal threaded pin holes. The Leadhead pin may be used with these insulators or with any insulator having the standard 1⅜-in. N.E.L.A. pin hole.—Electrical West, July, 1928.

Tork Clocks Windless—**Tork Clocks, Inc.,** 12 East 41st St., New York, has placed on the market a line of electrically operated clocks that can be furnished for any voltage, either a.c. or d.c., and have a reserve of 24 hours to take care of possible interruptions to current. They are guaranteed for unusual timekeeping accuracy under all ordinary temperature conditions. The cost of operation is less than a cent a year. The line includes wall clocks for stores and offices, double-faced hanging clocks, and double-faced street clocks. There is also a program signal wall clock which will ring a program of bells on any daily schedule desired.—Electrical West, July, 1928.

Electric Mortiser—A portable electric hollow chisel mortiser which, the manufacturer states, does the highest caliber work on square holes up to ½-in. diameter, has been developed by **J. D. Wallace & Company,** 134-158 South California Ave., Chicago.—Elec-West, July, 1928.

Utility Cord Tap

A newly patented device, described as a utility cord tap or convenience outlet, has been brought out by the **Beaver Machine & Tool Company, Inc.**, Newark, N. J.

This device is one that the ordinary householder may purchase and attach

to the surbase or woodwork of his home and thereby install what amounts to a convenience outlet. The manufacturer points out that the device has a strong appeal to householders, especially those who rent their homes. It is made in black and brown composition and also in white glazed porcelain.—Electrical West, July, 1928.

Electric Saw Table—A new electric saw table has been devised by **Black & Decker**, Towson, Md. This saw table, which materially extends the scope and usefulness of the Black & Decker electric combination grinder, can be quickly mounted on the grinder and work sawed accurately at any angle up to 45 deg. The table, which may be raised or lowered to fit all requirements, is sold separately or in combination with the grinder. The machine will saw, in addition to wood up to 1¾ in. in thickness, aluminum, brass, copper, bakelite, fiber and similar materials.—Electrical West, July, 1928.

Radio Panel Lamp—A new panel lamp (Mazda No. 41) for illuminating the dials of operated radio sets has been announced by the **National Lamp Works** of the General Electric Company, Cleveland, Ohio. This lamp is designed to receive current from the filament circuit of 2.5-volt vacuum tubes, and thus eliminates the necessity of providing an extra transformer winding to supply the proper voltage. The lamp has the following specifications: Amp.—0.45; overall length—1⅛ in.; light center length—13/16 in.; bulb—T-3 clear; base—miniature screw; list price—20 cents.—Electrical West, July, 1928.

Residential Lighting Fixtures—Realizing that the demand in period fixtures is limited, the Ivanhoe Division of **The Miller Company**, Cleveland, has announced the Cosmopolitan line. These fixtures, designed without the limitations imposed by time or place, are applicable anywhere. They are complete in ceiling and suspension types with brackets to match and are finished in pewter and gold. Glass shades, new in contour, and with decorations to harmonize with this line are also available. —Electrical West, July, 1928.

Recent Publications

Solvent and Calculating Chart—John C. Dolph Company, 168 Emmett St., Newark, N. J., states that it has published a solvent and calculating chart, which is being sent to armature winding shops where insulating varnish is used. To companies not already in possession of this chart, copies will be sent free of charge upon request.

Measuring Instruments—A carefully compiled catalog, No. 16, of its complete line of electrical measuring instruments has been prepared by the **Jewell Electrical Instrument Company**, 1640-50 Walnut St., Chicago. The catalog covers portable type instruments, switchboard and panel mounting instruments and radio. All are illustrated and described in much detail.

Lighting Data—"Lighting the Home," Bulletin LD-137B, and "The Mazda Lamp in Projection Service," Bulletin LD-107B, are the self-explanatory titles of two booklets recently issued by the **Edison Lamp Works** of the General Electric Company, Harrison, N. J.

Renewable Fuses—The Trico Fuse Manufacturing Company, Milwaukee, has announced bulletin 206-B, describing its "powder-packed" renewable fuses. It contains interesting engineering data and tests on overload time-lag and watt loss saving.

Wiring Devices—Catalog 282 has been issued by the Merchandising Department of the **Westinghouse Electric & Manufacturing Company**, Mansfield, Ohio, giving detailed information covering the company's safety switches, motor starting switches, panelboards and wiring devices.

Compressors and Vacuum Pumps—Ingersoll-Rand Company, 11 Broadway, New York, has ready for distribution an illustrated catalog, form No. 3150, describing its line of compressors and vacuum pumps, class ER and FR. It also has recently issued its sixth edition, revised, of its book, "100 and 1 Ways to Save Money with Portable Compressors."

Vacuum Cleaner Catalog—Under the title, "A Distinguished Family," the **Electric Vacuum Cleaner Company, Inc.**, Cleveland, has published a booklet descriptive of the "Premier Family." The book is made up almost entirely of halftone and line illustrations and is printed in blue, red and black.

Plugs and Receptacles—This is the self-explanatory title of Bulletin No. 2111 now ready for distribution by **Crouse-Hinds Company**, Spracuse, N. Y.

Floodlighting — Bulletin GEA-161B, "Floodlighting, Including Searchlight & Airport Lighting," is being distributed by the **General Electric Company**, Schenectady, N. Y. "Ornamental Novalux," bulletin GEA-359A, covering architecturally decorative street-lighting fixtures designed for use with Mazda lamps, is also ready for distribution by the company.

Mining and Electric Railway Devices —The Ohio Brass Company, Mansfield, Ohio, has published a complete catalog supplement containing a description of and complete ordering information for 28 new and useful mining and electric railway devices. The new publication is designed to fit inside the front cover of the O-B general catalog No. 20.

Portable Fireplaces—"The Vogue of the Portable Fireplace" by H. A. Bame, U.S. agent for **Berry's Electric, Ltd.**, 101 Park Ave., N. Y., describes the portable fireplace which is especially adapted for the Magicoal Electric Fire, and explains the simplicity of its installation. Illustrations of many different architectural types of mantles and hearths, which may be obtained with the fireplace, are shown, accompanied by descriptions and dimensions.

"The Porcelain Washer"—Showing its ABC spinner in two-color finish, **Altorffer Bros. Company**, Peoria, Ill., is distributing an attractive folder setting forth the advantages of its washing machine and describing its principal mechanical features.

Expansion Anchors—Announcement has been made by the **James R. Kearney Corporation**, 4228 Clayton Ave., St. Louis, Mo., that it will forward upon request copy of a new bulletin describing its Hi-tension 4-in-1 expansion anchors which it is manufacturing and marketing in four sizes.

Maximum Demand Register—This is the title of Bulletin No. 75 issued by the **Sangamo Electric Company**, Springfield, Ill., describing and illustrating its type HB maximum demand register.

Ceiling Fans—Circulars, forms 1386 and 1387, illustrating and describing its line of a.c. and d.c. ceiling fans, built with lighting units, are being distributed by **Robbins & Myers, Inc.**, successors to The Robbins & Myers Company, Springfield, Ohio. These units are especially suited for hotels, office buildings, churches, theaters, restaurants, stores and homes.

Spool Insulating Supports—Bulletin No. 31-F will be sent upon request to anyone interested in a new line of unit-type low-voltage spool insulating supports which have been developed by the **Delta-Star Electric Company**, 2400 Block, Fulton St., Chicago, Ill.

ELECTRICAL WEST Barometer of Industrial Activity in Western States

THAT the manufacturing plants of the Western states witnessed materially a decreased rate of productivity during May and were also operating materially under the rate reported for May last year is indicated by reports received on monthly electrical energy consumption by some 400 large manufacturing plants operating in this section. May rate of operations was almost 4.3 per cent under April and about 11 per cent under May of last year, after corrections are made for the number of working days in the various months. A decreased rate of production was also witnessed during the first five months of the current year, the average rate of operations for the period being 2 per cent under that witnessed during 1927. The present indications are that the record rate of operations recorded by the manufacturing plants of the Western states during the summer months of 1927 will not be equaled during the current summer. The expected seasonal increase in the operations of the food manufacturing plants, however, may be such as to raise the index of operations very close to that of last year.

The decreased rate of operations recorded by general industry was not recorded, however, by all the primary groups. Four important groups—lumber and its products, paper and pulp, rubber and its products and the stone, clay and glass groups—all reported increased operations over May last year, the lumber industry recording an increase of 10.7 per cent. On the other hand, four just as important industrial groups—chemicals and allied products, food and kindred products, the metal industries, and the shipbuilding industry—all recorded a rate of operations under those of May, 1927, the food industry reporting a decrease of 14 per cent.

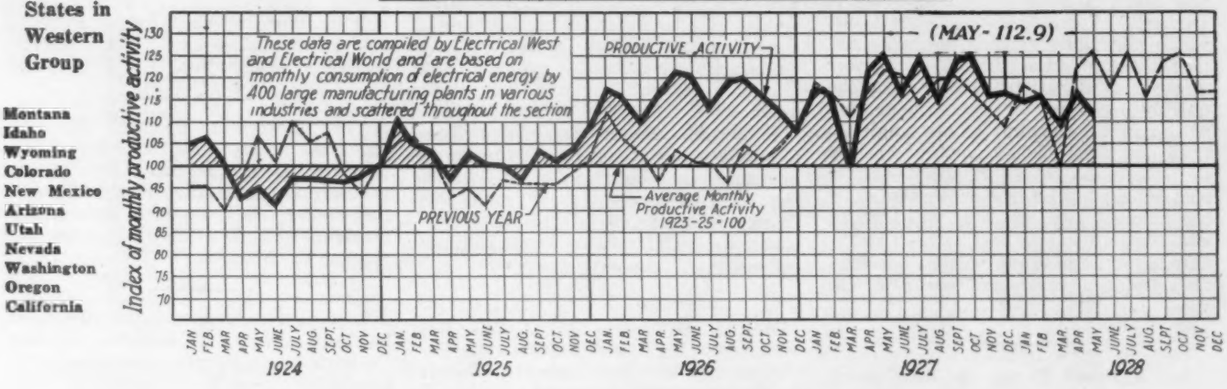
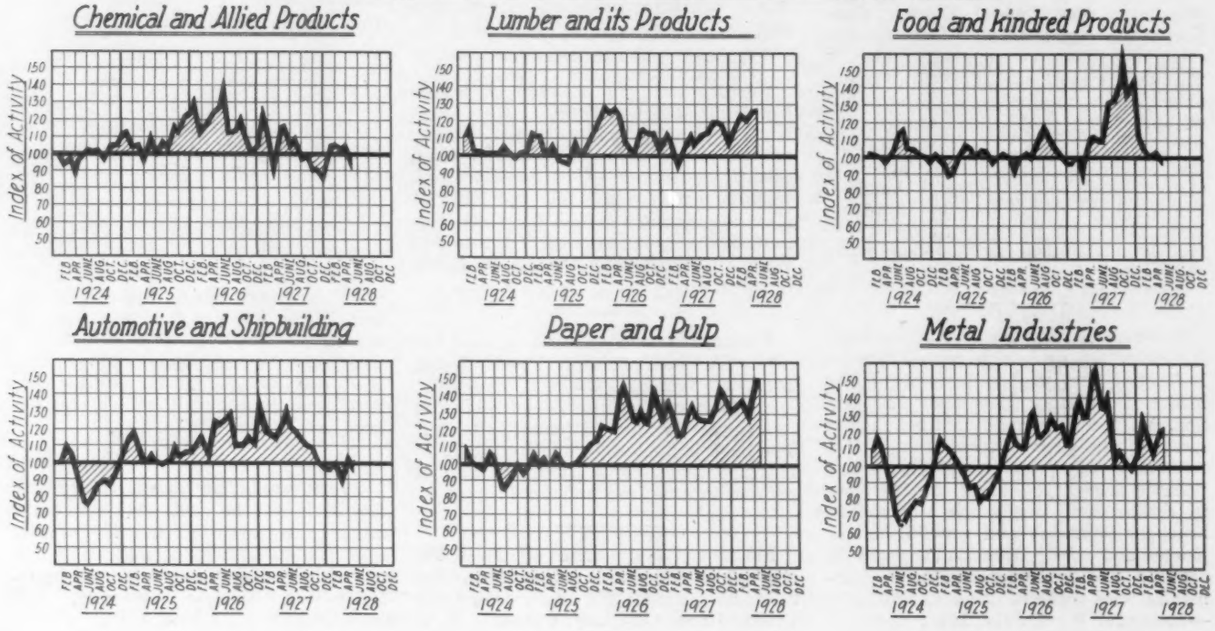
Indexes of Productive Activity in the Western States

(All Figures Adjusted for Number of Working Days)

	May 1928	Apr. 1928	May 1927	Av. first 5 months 1928	Av. first 5 months 1927
All industry	112.9	117.8	126.8	114.5	116.7
Chemicals and allied products	90.0	108.7	118.4	97.8	114.9
Food and kindred products	97.4	103.0	113.2	101.6	105.2
Lumber and its products	128.2	127.6	115.8	125.7	110.8
Metal industries group	124.0	123.3	161.0	123.6	151.0
Paper and pulp	150.0	150.3	137.6	144.6	133.7
Rubber	133.7	140.8	123.3	141.1	
Shipbuilding	94.2	104.6	134.0	95.3	128.4
Stone, clay and glass	154.5	155.2	150.5	154.2	

GENERAL PRODUCTIVE ACTIVITY IN THE WESTERN STATES

- Adjusted for number of working days but not for seasonal variation.



PRODUCTIVE ACTIVITY IN THE PRIMARY INDUSTRIES OF THE WESTERN STATES